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Teacher Self-efficacy, Collective Teacher Efficacy, Automatic Thoughts, States of Mind, and Stress in Elementary School Teachers

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TEACHER SELF-EFFICACY, COLLECTIVE TEACHER EFFICACY, AUTOMATIC THOUGHTS, STATES OF MIND, AND STRESS IN ELEMENTARY SCHOOL TEACHERS

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Dissertation Approval

This is to certify that the thesis presented to us by Robert Shambaugh on the 25th day of June, 2008, in partial fulfillment of the requirements for the degree of Doctor of Psychology, has been examined and is acceptable in both scholarship and literary quality.

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Abstract

This study examined the relationships between teacher self-efficacy, collective teacher efficacy, automatic thoughts, Balanced States of Mind (BSOM) model, and levels of stress in regular education elementary school teachers. A sample of 66 teachers from rural and urban south central Pennsylvania school districts completed the following questionnaires: Teacher Beliefs Scale (TBS), Collective Teacher Beliefs Scale (CTBS), Automatic Thoughts Questionnaire – Revised (ATQR), Teacher Stress Inventory (TSI), and a demographic survey. A ratio of positive to positive-plus-negative automatic thoughts from the Balanced States of Mind model (BSOM) became the fifth variable. This study presumes that teachers have more stress today following the onset of No Child Left Behind legislation in 2001. Hence, this study hypothesized that a positive relationship exists between teacher self-efficacy, collective teacher efficacy, and the BSOM ratio, while an inverse relationship exists between negative automatic thoughts and teacher stress. Data consisted of the total and subscale scores from the questionnaires and the BSOM ratio. A Pearson product-moment correlation coefficient identified the relationships between the continuous variables; a point-biserial correlation identified the relationships with the BSOM ratio. Additional analysis using a MANOVA and independent samples *t*-test examined mean differences between rural and urban teachers on the variables. Results indicated that teacher self-efficacy correlated positively with collective teacher efficacy and the BSOM ratio, but that collective teacher efficacy did not relate significantly with the BSOM ratio. However, these variables correlated inversely to negative automatic thoughts and teacher stress. Teacher stress related significantly with the frequency of negative automatic thoughts. A MANOVA and the

independent *t* test revealed that no significant differences existed between rural versus urban teachers on any of these variables using school context as the dependent variable. These results suggest that by enhancing teachers' efficacy beliefs and educating them on the benefits of regulating their positive and negative thinking, they become a crucial contributor to student achievement. In addition, they will be better equipped to manage their stress. Finally, a discussion of the summary of the results, limitations, and recommendations for future research conclude this study.

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CHAPTER 1

The literature on teacher stress intimates that teaching public school makes it one of the highest stressed professional occupations (Brissie, Hoover-Dempsey, & Bassler, 1988; Fimian, 1984; Granziano, 2005; Jarvis, 2002; Kyriacou, 2001; Wilhelm, Dewhurst-Savellis, & Parker, 2000). Disruptive students (Brouwers & Tomic, 2000; Hastings & Bham, 2003), oversized classrooms (Abel & Sewell, 1999), managing diverse all-inclusive classrooms (Boaler, 2003), meeting time deadlines (Fimian, 1984), and handling multiple workload demands (Kohn, 2005) are cited as main sources of stress. In addition, teachers are affected by challenging relationships with colleagues and principals (Sunderman, Tracey, & Orfield, 2004), teacher shortages (Mandel, 2006), attrition (Granziano, 2005), and the frightening prevalence of school violence (Nolle, Guerino, Dinkes, & Chandler, 2007).

Authorization of the No Child Left Behind Act of 2001 (Compliance With the No Child Left Behind Act, 2003) mandated teachers to be knowledgeable and certified in the subjects they teach (Hagge & Waltman, 2007). The new legislation expects teachers to be responsible for how well their students perform, educating special education students, teaching students with limited English proficiency, and managing students with a wider range of behavioral and emotional needs than ever before in the history of education (Boaler, 2003; Noddings, 2005; Sunderman, Tracey, & Orfield, 2004). In addition, teachers live with the prospect that their school districts will implement a strategy to compensate them according to their student's performances on the state achievement assessments (Abrams, Pedulla, & Madaus, 2003; Compliance With the No Child Left Behind Act, 2003; Sunderman, 2006; The White House, n.d.). Others are left dissatisfied

with the No Child Left Behind mandates, reporting increased stress (Boaler, 2003; Hagge & Waltman, 2007; Noddings, 2005; Sunderman, Tracey, & Orfield, 2004). If left unchecked, prolonged teacher stress and low morale could be detrimental for student performance and for teachers' health and well-being (Taylor, Zimmer, & Womack, 2005).

Frequent and intense periods of stress can be a problem when teachers lose the ability to cope with their stressors. Teachers manifest this inability to manage psychologically, emotionally, and physiologically (Fimian, 1984). Stressed teachers affect their environment. Over time, the cumulative effect of these manifestations could affect the teacher's preparation, class demeanor, and their professional relationships. Students notice when teachers are stressed (Hastings & Bham, 2003; Yoon, 2002). Stressed teachers are emotionally spent and professionally ineffective. Stress leads to compassion fatigue, which can affect the quality of a teacher's instruction, interpersonal interactions with students and colleagues, and their physical and mental health (Wisniewski & Gargiulo, 1997).

Exposure to chronic stress markedly increases vulnerability to adverse medical problems (Miller, Chen, & Zhou, 2007). Human service occupations and the risk of stress-related disorders are related (Wieclaw, Agerbo, Mortensen, & Bonde, 2006). Some have maintained that personality traits mediate the relationship between teacher stress and psychological distress (Chan, 1998) that exacerbate an already challenging environment.

The literature suggests that teacher stress is not attributable to a single source (Betoret, 2006; Fimian, 1988; Kyriacou, 2001). Organizational structure, work conditions, professional interactions, and difficult students are just a few sources of stress (Wisniewski & Gargiulo, 1997). However, to view stress reactions as solely the result of the environment seems shortsighted. Bandura (1997) and Lazarus and Folkman (1984) theorize that stress is a by-product of a pivotal appraisal process embedded in the reciprocal interactions between the environment, cognition, and behavioral responses.

The notion that stress may be attributed to a person's subjective interpretation or perception of an event (Lazarus & Folkman, 1984) rather than attributed to the event itself was first summarized by the Stoic philosopher Epictetus in *The Enchiridion*, "Men are not disturbed by things, but by the view which they take of them" (American Institute of Stress, n.d.). For Lazarus and Folkman (1984), a person experiences stress when he or she perceives or appraises the demands of a situation as taxing or exceeding his or her resources to cope with the demands effectively. Stress, real or perceived, is an event that a person interprets as taxing. According to Bandura (1997), stress is more likely to occur in persons who have a poor regard for his or her own capacity to cope with the environment. Thus, stress seems to have a direct relationship with cognitive processes of individuals.

This focus on cognitive processes as the origin of distress and maladaptive behaviors was the shift revisited in the cognitive revolution (Mahoney, 1974). With the onset of the cognitive revolution, many researchers viewed overt observable behaviors as influenced by cognitive activity. In spite that cognitive activity was perceived by

behaviorism as mercurial and beliefs as malleable (Lee, 1992; Skinner, 1971), easily shaped by the whims and vicissitudes of the environment, cognitive processes became fertile ground for interventions, serving as an inroad to understanding and treating human pathology (Beck, 1967, 1976; Dember, 1974; Dush, Hirt, & Schroeder, 1983; Mahoney, 1989). Clinicians began to teach their clients skills to modify, redirect, restructure, or reframe unhealthy cognitive processes in order to improve psychological functioning (Beck, 1976; Ellis, 1962; Meichenbaum, 1977). Thus, cognitions and beliefs moved to the forefront of research.

The beliefs people have about themselves are key elements in the exercise of control and personal agency (Bandura, 1977b, 1978, 1982, 1997). Beliefs are the best indicators of the decisions individuals make (Bandura, 1986). Perhaps the most important single cause of a success or failure has to do with the question of what individuals believe about their performances (Hoy & Murphy, 2001). Of all things that influence behavior, i.e., knowledge, skills, prior successes, performance, achievement, and goal attainment, empirical research found the belief in one's ability to execute the behavior more salient (Bandura, 1997).

Embedded as the cornerstone of social cognitive theory, Bandura defined self-efficacy as the "belief in one's capabilities to organize and execute courses of action required to produce given levels of attainments" (1997, p. 3). In addition, self-efficacy encompasses individuals' beliefs in their capabilities to mobilize their motivation, cognitive resources, and course of actions needed to exercise control over task demands (1997).

Self-efficacy beliefs influence how people think and feel (Bandura, 1977b). Self-efficacy beliefs determine the courses of action one chooses, how much effort to expend with difficult tasks, and how much stress and depression experienced while coping with taxing demands (Bandura, 1977b, 1993, 1997). Self-efficacy helps persons to persist in the face of adversity, rebound from setbacks, and perceive threats as opportunities (Bandura, 1997). Individuals who are high in self-efficacy appear undaunted by stressful situations (Bandura, 1988, 1997; Kent & Gibbons, 1987).

Research provides strong empirical support for the fact that self-efficacy is a powerful predictor of behavior (Bandura, 1977b, 1997; Caprara, Barbaranelli, Borgogni, & Steca, 2003; Casey, Newcombe, & Oei, 2005; Chwalisz, Altmaier, & Russell, 1992; Diclemente, 1981, 1986; Jennett, Harris, & Mesibov, 2003; Jex, Bliese, Buzzell, & Primeau, 2001; Kent, 1987; Leiter, 1992; Luszczynska, Gutierrez-Dona, & Schwarzer, 2005; Matsue & Onglatco, 1992; Schwarzer, 1992)

Moreover, self-efficacy has been demonstrated to be responsible for diverse outcomes, such as overcoming addictive behaviors (Diclemente, 1986), controlling anxious and intrusive thoughts (Kent & Gibbons, 1987; Ozer & Bandura, 1990), smoking cessation (Diclemente, 1981), determining teacher job satisfaction (Caprara et al., 2003), moderating the relations between work stress and physical and psychological strain (Jex et al., 2001; Matsue & Onglatco, 1992). In addition, Chwalisz et al. (1992) discovered self-efficacy beliefs to be responsible for problem-focused coping when dealing with stress. Leiter (1992) found self-efficacy beliefs might avert teacher burnout. Teacher self-efficacy was associated with academic achievement (Amor et al., 1976; Ashton & Webb,

1986; Moore & Esselman, 1992; Ross, 1992). Furthermore, in his study on group or collective efficacy, Bandura found efficacy beliefs correlated with organizational behavior and change (Bandura, 1993).

It is important not only to the individual, but efficacy beliefs also help groups accomplish their goals. Referred to as collective efficacy, a group's belief in its ability to reach its objectives modifies the group's organizational behavior and change (Bandura, 1993). This shared belief that individuals hold about their group's capabilities to accomplish its goals (Bandura, 2000; Little & Madigan, 1997; Sampson, Raudenbush, & Earls, 1997) becomes part of the group's culture (Kurz & Knight, 2004), shared, because each individual's interpretations of events are in part based on how others perceive and interpret them (Watson, Chemers, & Preiser, 2001). A group's collective efficacy contributes to a culture characterized by a norm of, and an expectation for, sustained effort and resiliency in the pursuit of group goals (Goddard & Skrla, 2006; Watson et al., 2001).

Collective efficacy is not just the sum of individual members' efficacy beliefs, but also the product of the interactive dynamics of the group members (Goddard, Hoy, & Hoy, 2000). Collective efficacy beliefs are associated with work-related stressors (Jex & Bliese, 1999), teacher job satisfaction (Caprara et al., 2003), and the effectiveness of manufacturing work teams (Little & Madigan, 1997). Furthermore, collective efficacy is responsible for the effectiveness of nursing teams (Gibson, 2001) and student achievement (Bandura, 1993; Goddard et al., 2000).

However, as powerful a factor in producing individual and group behavior as efficacy beliefs can be, self-doubts and insidious negative thinking patterns can render efficacy beliefs useless and stifle motivation (Bandura, 1997). Schools with low collective efficacy can mismanage routine crises, creating unnecessary havoc. Co-existing self-doubts or intrusive negative thoughts can bias perfectly established self-efficacy beliefs.

Internal and external experiences shape and form efficacy beliefs through a cognitive appraisal process that interprets the cues or information gained from these events. The resultant belief may be an accurate or inaccurate reflection of one's skills.

Negative thinking affects not only self-efficacy beliefs (Bandura, 1997; Kent, 1987), but Beck (1976) discovered the impact of negative thoughts on his clients suffering from depression and anxiety. Before the cognitive revolution, there was little research to substantiate the impact of negative or positive thoughts on psychological well-being. There was only speculation whether cognitions were transitory or enduring, relevant or irrelevant to behavior.

Cognitive theory posited that automatic thoughts or surface cognitions are reflective of schema or core beliefs about what individuals think about themselves, their world, and their future (Beck, 1976). These core beliefs develop early in one's development, serving to guide and influence individuals' decisions (Beck, 1967, 1976). What Beck (1976, 1991) discovered was that frequent and intrusive negative thoughts could potentially be robust; he concluded that these thoughts predisposed persons to pathological functioning.

One approach was to develop interventions aimed at reducing negative thoughts (Beck, 1976; Ellis, 1962: Meichenbaum, 1977). Another approach explored interventions aimed at increasing positive thoughts when dealing with stress (Lightsey, 1994a) and depression (Ingram & Wisnicki, 1988). Studies emerged showing negative thoughts relative to positive thoughts weigh more heavily in distinguishing functional versus dysfunctional groups and are more likely to change because of psychological intervention (Kendall & Hollon, 1981; Schwartz & Gottman, 1976). Kendall (1983) suggested that reducing negative automatic thoughts as opposed to increasing positive automatic thoughts would lead more likely to healthy psychological functioning. Thus, the presence of negative thoughts was more salient and enduring over time in predicting psychological distress than the presence of positive thoughts, which others found to be transitory (Bruch, 1997; Goodhart, 1985).

This led to interest into the asymmetrical relationships between positive and negative thoughts. Assessing both positive and negative thoughts, some characterize functional groups by a 1.7 to 1 ratio of positive to negative thoughts, whereas mildly dysfunctional groups show a 1 to 1 ratio (Kendall, Howard, & Hays, 1989; Schwartz, 1986). This proved to be a more reliable indication of healthy psychological functioning (Kendall et al, 1989; Schwartz, 1986; Schwartz & Garamoni, 1989). Building on Kendall's notion of this power of nonnegative thinking and research on the asymmetrical relationship between positive and negative thoughts, Schwartz and Garamoni (1989) posited that an optimal balance of positive and negative thoughts was characteristic of adaptive psychological functioning. Their states of mind model, reformulated by

Schwartz (1997) as the Balanced States of Mind (BSOM), was made up of seven states of mind each defined by a ratio of positive to negative cognitions.

Various terms have been used in the literature to describe the asymmetry of positive and negative thoughts that include self-talk (Ellis, 1962), inner speech (Vygotsky, 1962), automatic thoughts (Beck, 1976), self-statements (Kendall, 1983), and internal dialogue (Meichenbaum, 1977). Some defined self-talk as a semantically structured internal speech in which the person is both speaker and audience that embodies beliefs about the person and the world (Beck, 1976; Calvete & Cardenoso, 2002; Schwartz, 1986).

While there have been several studies relating self-efficacy and automatic thoughts separately with stress, none has been found in examining their relationship to one another, and less in investigating their relationship together with teacher stress. However, no studies related stress specifically with collective efficacy in the literature. Elementary school teachers who work in a stressful environment face environmental challenges. To be effective in the No Child Left Behind (NCLB) era means to deliver quality instruction while maintaining healthy interpersonal relationships with colleagues and students to obtain student achievement targets. Teacher self-efficacy, collective teacher efficacy, and a positive ratio of automatic thoughts are essential in surviving the pressures of the job.

Statement of the Problem

No Child Left Behind presents teachers with new challenges. In addition to delivering a quality education to the student, teachers must be concerned every student is

proficient in reading and math in order to meet adequate yearly progress (AYP) by 2014. Some states are thinking about making teachers' compensation contingent on how well their students do on the state achievement tests. There is increasing pressure on elementary school teachers to be both knowledgeable and effective in the subjects they teach (Sunderman, 2006; The White House, n.d.).

In an era of accountability, highly qualified and optimally functional teachers and faculties must raise student achievement to meet AYP. Many educators focus their energies on improving school climate, modifying organizational reform and curriculum (Peterson & Deal, 1998; Wagner, 2006). Novice teachers are leaving the field within the first 5 years (Granziano, 2005; Tschannen-Moran & Hoy, 2001) because they do not seem to have the necessary tools to deal with the stress. These challenges potentially exacerbate an already stressful profession. Several studies documented the manifestations of stress: illness, absenteeism, attrition, substance abuse, and overuse of sick leave (Betoret, 2006; Chan, 2002; Fimian, 1988; Hutchinson, 1998; Jarvis, 2002; Kyriacou, 2001; Taylor et al., 2005). It becomes harder to hold onto qualified teachers (Caprara et al., 2003; Granziano, 2005; Hutchinson, 1998). All of this makes it more difficult to attain educational goals.

What teachers believe about their competencies, their colleagues' competencies, and how they think is equally important to accomplishing educational objectives. The construct *teacher self-efficacy* received strong empirical support to be the most important resource over and above the possession of knowledge and skills (Bandura, 1986) in accomplishing job related objectives, even under stressful working conditions (Hoy &

Woolfolk, 1993; Hutchinson, 1998).

Studies found self-efficacy beliefs (Allinder, 1994; Amor et al., 1976; Czerniak & Schriver, 1994; Gibson & Dembo, 1984; Woolfolk & Hoy, 1990) and collective efficacy beliefs (Bandura, 1993; Goddard, 2001; Goddard, Hoy, & Hoy, 2000; Goddard, LoGerfo, & Hoy, 2004) to be significantly and positively related to teacher behaviors that promote student achievement. In addition, when accounting for mean prior student achievement and mean socioeconomic status, Goddard and Goddard (2001) found collective teacher efficacy to be the only single predictor of teacher self-efficacy differences among schools.

Teachers' individual and collective efficacy beliefs influence the social and cultural environment of a school and are equally predictive of student achievement (Bandura, 1997; Tschannen-Moran & Barr, 2004). Even so, teacher self-efficacy is a malleable construct influenced by negative automatic thoughts and low collective teacher efficacy beliefs. Teacher self-efficacy or the perception of one's abilities may not be enough. Low morale and negative attitudes about NCLB may undermine efficacy beliefs. Simply exposing novice and experienced teachers to mastery experiences without helping teachers process and integrate these new skills does not enhance efficacy. An individual's interpretation or cognitive appraisal of experiences may shape these beliefs (Gist & Mitchell, 1992). Bandura referred to this necessary process as self-reflecting and self-regulation (1997).

It would benefit educators to focus on what and how teachers think. Without an understanding of the principles of social cognitive and cognitive-behavioral theory,

teachers' way of thinking may interfere with accomplishing the educational targets of No Child Left Behind.

Purpose of the Study

The purpose of this study was to explore the relationship among teacher self-efficacy, collective teacher efficacy, frequency of automatic thoughts, the ratio of positive to positive-plus-negative thoughts, and teacher stress in elementary school teachers in the hope that an investigation into these relationships might inform ways to improve student achievement. In addition, the purpose of this study was to contribute an understanding of the relevance of cognitive activity to the growing body of research on teacher stress. Finally, the purpose of this study was to stimulate future research into the relationship between beliefs and thoughts and their influence on the other.

Rationale

Teacher self-efficacy may not be enough to help teachers meet the targets set by No Child Left Behind. The field of education needs research to examine the cognitive relationships between self-efficacy, collective efficacy, and positive and negative thoughts in elementary school teachers because job related stress could undermine teacher effectiveness and student achievement. Teacher efficacy beliefs are highly malleable, and negative self-talk could potentially undermine their best resource. Before NCLB, more than 30% of new teachers left the profession just after 3 years and more

than 45% after their first 5 years (Granziano, 2005). In all probability, teachers are experiencing more stress on the job.

Bandura contends, "The task of creating learning environments conducive to development of cognitive competencies rests heavily on the talents and self-efficacy of teachers" (Bandura, 1997, p. 240). Yet, in the No Child Left Behind era, negative thinking and low morale could emerge, resulting in a propensity for increased levels of teacher stress that may weaken the teacher's ability to be effective in instruction and deteriorate interpersonal relationships with students.

Schoolteachers who work under demanding stressful conditions are vulnerable to the negative assessment of their efficacy beliefs. Therefore, the timing of efficacy development is crucial. Addressing the malleability of efficacy beliefs, Pajares argued, "The earlier a belief is incorporated into the belief structure, the more difficult it is to alter" (1992, p. 324-325). Thus, the development and maintenance of teacher efficacy beliefs in novice teachers becomes relevant to educators interested in professional development. However, inservice training programs guided by the principles of social cognitive and cognitive-behavioral theory can enhance conscious awareness of how teachers process stress and assist them to meet targets of No Child Left Behind.

Review of Literature

The purpose of this section is to review the background and development of teacher self-efficacy, collective teacher efficacy, automatic thoughts, the states of mind model, and teacher stress. This review will examine the theoretical roots of self-efficacy

and collective efficacy as they relate to teachers. In addition, this study will review the construct of automatic thoughts, the states of mind model, and stress as it relates to teachers. Empirical studies of the nature of the relationships between teachers' efficacy beliefs, automatic thoughts/states of mind, and stress will follow.

Construct of Self-Efficacy

Teacher self-efficacy is a specific construct about the self-efficacy beliefs of teachers. However, self-efficacy theory did not begin in the field of education but in the field of social learning theory. The discussion begins with Albert Bandura, social learning theorist. First developed to establish a theoretical framework for explaining and predicting psychological change in phobic clients, Bandura defined self-efficacy as the "conviction that one can successfully execute the behavior required to produce the outcomes" (Bandura, 1977b, p. 193). In his 1977 seminal article, "Self-efficacy: Toward a unifying theory of behavioral change," Bandura boldly suggested that the success and failure of psychological procedures rests in the strength of people's efficacy beliefs (1977b) and that psychological procedures create and strengthen efficacy beliefs (1977b). Wood and Bandura enhanced the definition, adding its relevance for the direction of this study:

> Perceived self-efficacy refers to beliefs in one's capabilities to mobilize the motivation, the cognitive resources, and courses of action needed to meet given situational demands. Self-beliefs of efficacy affect the challenges that are undertaken, the amount of effort expended in an endeavor, the level of

> perseverance in the face of difficulties, whether thinking patterns take self-aiding or self-impending forms and vulnerability to stress and depression (p. 408).

Bandura's suggestion that self-efficacy may be a causal factor of behavior stimulated critical reactions. Many shed doubt on whether self-efficacy expectations are major determinants of change (Eysenck, 1978; Hawkins, 1992; Kazdin, 1978). For example, Hawkins saw self-efficacy as a predictor of behavior but not a causal agent (1995); Kazdin (1978) called it simplistic to credit self-efficacy with the therapeutic effects of diverse psychological treatments of multifaceted problems. The debate has continued for decades (Bandura, 1995). Bandura's response to these criticisms was to reiterate the core belief of his self-efficacy theory that "one has the power to produce desired effects; otherwise one has little incentive to act or to persevere in the face of difficulties" (Bandura & Locke, 2003, p. 87). Self-efficacy beliefs affect whether individuals think in self-enhancing or self-debilitating ways (2003).

Social cognitive theory. The construct of self-efficacy has its roots in social learning theory. The focus of social learning theory is that learning takes place in a social context as opposed to the behavioral model of stimulus-response (S – R) associated with Watson or the operant conditioning model of reinforcement proposed by Skinner. Speculations arose for the existence of a mediator between the stimulus and response (Woodward, 1982). Some believed that these models grew increasingly inadequate to explain a few of the anomalies of human behavior (Meichenbaum, 1977). Dissatisfaction with the stimulus-response model became the impetus in exploring cognitive

explanations (Dember, 1974). For example, Skinner's premise that "a person does not act upon the world, the world acts upon him" (Skinner, 1971, p. 211), based on observation a posteriori, was losing ground in American psychology (Mahoney, 1974).

Early social learning theory proposed learning through imitation, but allowed room for a cognitive role in the stimulus-response model. People learned through observation and imitation (Bandura, 1977a). However, Bandura believed the individual actively participated in his or her learning. His emphasis on cognition moved him further from original social learning theory, thereby renaming his version as social cognitive theory (1986). Bandura's theory of learning was not far off from his peers. Lave said learning was situated, a social process that was a function of activity, context, and culture (Lave, 1988). Vygotsky promoted social interaction as the crucible for learning and viewed social interaction's essential role in the development of cognition (Vygotsky, 1978). Bandura was leaning towards explanations that cognitive processes such as "what individuals think, believe, and feel affect how they behave" (1986, p. 25).

Views of learning that overemphasized environmental determinism require too much effort, if individuals were completely dependent on the effects of their own actions to inform them what to do (Bandura, 1977a). Bandura argued that cognitive processes mediate change "in the acquisition and regulation of behavior" (Bandura, 1977b, p. 193) because individuals are not simply reactors to their environment, but are both producers and products of their interactions with the environment (Pajares, 1996). For Bandura, "a theory that denies that thoughts can regulate actions does not lend itself readily to the explanation of complex human behavior" (Bandura, 1986, p. 15).

Bandura was not so naïve to believe that cognition was the sole determinant of behavior. He concurred that "cognitive factors partly determine which external events will be observed, how they will be perceived, whether they have any lasting effects, what valence and efficacy they have, and how the information they convey will be organized for future use" (Bandura, 1978, p. 345). People are viewed as proactive not reactive, self-organizing not predetermined who are self-reflecting and self-regulating.

A fundamental assumption of social cognitive theory is that people are capable of the intentional pursuit of particular courses of action (Bandura, 1989). He called this human agency, an agentive perspective opposed to environmental and personal determinism simply because "persons are neither autonomous agents nor mechanical conveyors of animating environmental influences" (Bandura, 1989, p. 1175). Being human is "intentionally making things happen by one's actions" (Bandura, 2001, p. 2). An important function of cognitions is the ability to provide the individual with a sense of control over the environment (Chwalisz et al., 1992). The essence of humanness is the capacity to exercise control over the nature and quality of one's life (Bandura, 2001). This distinctively human characteristic includes "the capacity to exercise control over one's own thought processes, motivation, and action" (Bandura, 1989, p. 1175).

For Bandura, human functioning is the product of a dynamic interplay of personal, behavioral, and environmental factors. The beliefs people have about themselves are key elements in the exercise of control and personal agency (Bandura, 1997). People shape their environment guided by their beliefs. Nonetheless, people are

neither powerless victims of the environment or entirely free agents who can do whatever they choose.

In the person-situation exchange, "behavior, internal personal factors, and environmental influences all operate together as interlocking determinants of each other" (Bandura, 1978, p. 346). Each component is interdependent (Bandura, 1997), which exerts influence on the other but not always of equal strength or simultaneously depending on the different circumstances (Bandura, 1997). Person, behavior, and environment operate concurrently (Bandura, 1989) and are regulated not consequentially in rewards and punishments, but rather antecedently, through cognitive processes (Bandura, 1986).

A sociocognitive perspective, therefore, assumes that people are capable of human agency or intentional pursuit of courses of action (Bandura, 1997). Such agency functions in triadic reciprocal causation (Bandura, 1978, 1986, 1989, 1997) or determinism, a multidirectional model of interaction between environmental influences, behavior, and internal personal factors, such as cognitive, emotional, and biological processes that create interactions that result in a triadic reciprocality (1978, 1986). Determinism from a sociocognitive perspective means "the production of effects by events" (Bandura, 1989, p. 1182), "probabilistically rather than inevitably" (Bandura, 1978, p. 345), unlike the doctrinal sense in which actions are predestined or predetermined by a prior sequence of events independent of the individual (Bandura, 1978, 1989)

Nature of self-efficacy. Self-efficacy has been written and studied about extensively (Ashton & Webb, 1986; Caprara et al., 2003; Gibson & Dembo, 1984; Gist & Mitchell, 1992; Guskey & Passaro, 1994; Kent & Gibbons, 1987; Pajares, 2002; Raudenbush, Rowan, & Cheong, 1992; Tschannen-Moran, Hoy, & Hoy, 1998)

Various outcomes have been linked to self-efficacy such as addictive behaviors (Diclemente, 1986), smoking cessation (Diclemente, 1981), and academic achievement (Amor et al., 1976; Ashton & Webb, 1986; Goddard, LoGerfo, & Hoy, 2004; Rose & Medway, 1981).

Bandura defined self-efficacy as the conviction that one can successfully execute the behavior necessary to produce a desired outcome (Bandura, 1977b). Complex cognitive appraisal processes give shape and form to self-efficacy. Efficacy shaping beliefs come from four major sources, which the individual interprets, assesses, and judges.

Individuals form their efficacy beliefs by interpreting information mostly from four sources: mastery experiences, social modeling, social persuasion, and physiological and emotional states (Bandura, 1997). Individuals form their self-efficacy beliefs by interpreting information based on these important sources. Bandura (1986) posited "perceived self-efficacy results from these diverse sources of information conveyed vicariously and through social evaluation, as well as through direct experience" (p. 411).

Enactive mastery experiences are the most effective source of efficacy information (Bandura, 1997; Tschannen-Moran, et al., 1998) because they directly involve the individual successfully completing a task that provides direct feedback.

Successes raise mastery expectations; repeated failures lower them (Bandura, 1977b). Efficacy beliefs are strengthened substantially on difficult and challenging tasks or when success is achieved early in learning rather than on easy, unimportant tasks. Failures readily discourage the accomplishment of easy tasks. Thus, failure undermines efficacy beliefs (Bandura, 1997).

Vicarious experiences or modeling is a second source from which individuals form their efficacy beliefs. A role model that an individual easily identifies with and is successful enhances efficacy beliefs. However, when the role model is foreign to the learner or fails at the task, chances are that efficacy beliefs will be unchanged or decrease. Watching others perform a difficult task successfully forms the basis for judging the task manageable and that one possesses the resources to do so. Psychological strategies such as using problem-focused strategies in coping with stress can enhance efficacy beliefs by observing others use the strategy (Gist & Mitchell, 1992). According to Bandura (1997), people partly judge their capabilities in comparison with others.

Verbal persuasion, similar to the role model, is a third source of efficacy-forming information. The potency of the persuasion depends on the credibility, trustworthiness, expertise, and prestige of the person doing the persuading (Bandura, 1977b). Verbal persuasion may include feedback or instruction about abilities in the form of a discrepancy between performance and a goal (Gist & Mitchell, 1992). If the social persuasion leads a person to attempt new strategies or increase efforts to succeed, then the persuasion was within realistic bounds. However, the "raising of unrealistic beliefs of

personal competence only invites failures that will discredit the persuaders and will further undermine the recipient's perceived self-efficacy" (Bandura, 1986, p. 400).

Physiological and emotional states experienced can influence an individual's efficacy judgments (Bandura, 1977). Feelings of relaxation and positive emotions signal self-assurance and confidence (1986). Individuals might perceive the experience of arousal, such as increased heartbeat and perspiration or trembling hands, positively as excitement or negatively as stress and anxiety, depending on the individual's situation, history, or overall arousal (1997). Bandura views anxiety as a co-effect of self-efficacy expectations in that the level of anxiety varies inversely with the level and strength of self-efficacy expectations (Bandura, 1991). As self-efficacy expectations are increased, anxiety should decrease and vice versa.

Thus, Bandura (1986) posited that perceived self-efficacy results from these sources of information conveyed vicariously and through social evaluation, as well as through direct experience.

Nevertheless, the impact of this information on self-efficacy beliefs will depend on how it is cognitively appraised (Bandura, 1997). Information contained in environmental events is not the same as information perceived by the individual (1997). The sources of information "must be processed and weighed through self-referent thought" (Bandura, 1997, p. 115). Possessing a strong sense of self-efficacy does not come about by standing in front of the mirror practicing the "incantation of capability" (Bandura, 1997, p. 115). Saying what one would like to be able to do is not the same as believing it to be so especially if it contradicts preexisting beliefs.

Moreover, mastery experiences alone do not make an efficacy belief. They do not necessarily increase or decrease an individual's self-efficacy, according to Bandura (1997). Variability in one's efficacy beliefs comes from the cognitive processing of performances as well as what they convey about capability (1997). It depends on what is made of those performances. Furthermore, Bandura (1997) has stressed that discriminative and sometimes biased cognitive processes transform all sources of efficacy information. It follows that efficacy beliefs evolve not so much by an individual's mastery experiences and performances or through modeling and persuasion, but through interpreting and weighing the information derived from these experiences and performances (Bandura, 1997). Therefore, one's cognitive filters, intrusive thoughts, schemata, and mood state may bias the resultant interpretation (Bandura, 1997; Kavanagh & Bower, 1985). That may be the reason why "people often do not behave optimally, even though they know full well what to do" (Bandura, 1982, p. 122). Thus, the nature of self-referent thought is to mediate the relationship between knowing and doing (1982).

The formation of an efficacy belief is the cognitive appraisal of external and internal cues or information resulting in an efficacy judgment (Bandura, 1977b). Individuals cognitively process the complexity or difficulty of the situational demand or task, followed by an attributional analysis of experience with the task and examination of one's resources or capabilities to perform the behavior successfully (Gist & Mitchell, 1992). In the final analysis, the resultant judgment may be an accurate or inaccurate assessment of one's actual capabilities.

Although all four sources of information contribute to efficacy beliefs, it comes down to the interpretation of the information that is critical to making a difference (Bandura, 1977b; Gist & Mitchell, 1992). The determinants of efficacy vary on locus of causality, variability, and controllability. Each of these sources contributes a variety of external and internal information cues that can influence self-efficacy. Regardless of the quality of the sources, preexisting beliefs, biases, attributions, and the particular pieces of information valued, remembered, and attended to, shape efficacy beliefs (Bandura, 1997).

Three types of assessment processes are involved in forming efficacy beliefs. An efficacy judgment is a comprehensive assessment of capability that involves three steps: analysis of task requirements, attributional analysis of experience, and examination of self and setting (Gist & Mitchell, 1992). The analysis of task requirements produces inferences about what it takes to perform the particular task at various levels, judging task difficulty and complexity, and the amount of time required. An attributional analysis of experiences seeks answers to why certain things happened in order to learn from them for future behavior (Gist & Mitchell, 1992). When individuals examine self and setting, the individual assesses the availability of specific resources and constraints for performing the task. This assessment considers personal factors such as skill level, anxiety, mood, desire, and effort as well as situational factors that may alter future performance. This assessment is a process in which the individual weighs and integrates different sources of information to form self-efficacy (Bandura, 1997).

Attribution theory has contributed to understanding how individuals make judgments of efficacy-shaping information. Causal attribution processes assess past

performances, experiences, and behaviors. Factors affecting attributions are effort, ability, luck, or task difficulty (Weiner, 1985). According to Weiner (1979, 1985), these attributions are then classified into three causal dimensions: locus of control (internal or external causes), stability (mutable), and controllability (are the causes controllable or not). These attributions are antecedents of future behavior. Where attributions are assessments about causes of experiences, self-efficacy pertains to future performance capability. Thus, attributions made through causal analysis of previous experiences are utilitarian in assessing future capability (Gist & Mitchell, 1992).

Moreover, attribution theory has made these dimensions into distinctions that categorize attributions in efficacy judgments. They are internal/external, stable/unstable, and controllable/uncontrollable (Weiner, 1979, 1985). Moreover, Bandura (1997) posited external and internal cues render self-efficacy mutable. External factors such as the perception that the setting is precarious or risky, whether physical or psychological, may influence internal variables such as level of anxiety, which can lower efficacy beliefs through thoughts of failure, physiological manifestations of stress, and the reduction of coping mechanisms (Lazarus & Folkman, 1984). Persons who regard themselves with strong self-efficacy attribute their failures to insufficient effort; persons who see themselves with low self-efficacy attribute their failures to a lack of ability (Bandura, 1997).

The construct of self-efficacy is most predictive of behavior when it includes both efficacy expectations and outcome expectations (Bandura, 1977b). Bandura (1977b) posited that outcome expectations – a person's estimate that a given behavior will lead to

certain outcomes – and efficacy expectation – the conviction that one can successfully execute the behavior required to produce the outcomes – determine an individual's behavior in a particular context.

Thus, as an outcome expectation, individuals may believe that a particular course of action will produce certain outcomes, but not necessarily believe that they themselves can produce the particular outcome. Even if the person believes that a given coping response will result in a positive outcome (outcome expectancy), no action will occur unless the person feels capable of producing the necessary response (efficacy-expectation). The level of confidence determines how persistent one may or may not be in carrying out an action. Individuals who have high expectancies for both types of expectations have greater success, as they will continue to be persistent when confronted by difficulties that impede steady progress (Bandura, 1977b).

As there are three types of assessment, there are three dimensions to efficacy beliefs. Self-efficacy beliefs vary on magnitude, generality, and strength (Bandura, 1977b) that result in substantial performance ramifications (Bandura, 1997). Magnitude refers to the ordering of tasks or behaviors ranging from easy to difficulty that lead to the main task. Simpler tasks require only basic behaviors, which may not be sufficient for the same task at an increasingly difficult level. Generality refers to the extent that efficacy expectations about a particular task generalize or apply to different contexts. Strength refers to how certain one is of succeeding at a particular task. Some efficacy beliefs will weaken in the face of certain adversities and stressors, while other individuals' efficacy

expectations will be resilient and withstand the undue pressures of external stimuli (1977b).

Eastman and Marzillier (1984) raised an important question from self-assessment processes, inquiring whether individuals can accurately predict their own behavior. Gist and Mitchell (1992) addressed the accuracy question. Several factors appear to influence the accuracy of an individual's assessment of efficacy. Perceptive errors may occur when estimating the necessary resources required for completing a task successfully and how many one possesses to be successful. In addition, inaccuracy can come from the specific attributions made about the causes of performance (Gist & Mitchell, 1992).

Accurate judgments of efficacy are contingent on stable personal and task attributes. Persons, environments, and task-specific situations that undergo constant variability make an accurate assessment of efficacy much more difficult. Personality factors such as Type A and B, level of self-esteem, and mood (Kavanagh & Bower, 1985) may lend efficacy judgments susceptible to an inaccurate assessment of capability (Gist & Mitchell, 1992). For example, Kavanagh and Bower (1985) found that emotional states have widespread impact on judgments of capabilities when mood-congruent thoughts are accessible.

The strength of one's self-efficacy beliefs determines whether persons will cope with any given situation (Bandura, 1977b). Efficacy beliefs influence thoughts both pessimistically and optimistically (Kent & Gibbons, 1987) and in ways that hinder or enhance good judgment (Ozer & Bandura, 1990). If people believe they cannot produce certain outcomes, they will not attempt to make things happen. As Bandura succinctly put

it, "unless people believe they can produce desired effects by their actions they have little incentive to act or persevere in the face of difficulties" (Bandura, 2004, pp. 621-622).

Efficacy beliefs influence how people feel, think, motivate themselves, and behave (Bandura, 1993). People engage in tasks in which they feel competent and avoid those in which they do not (Bandura, 1977b, 1997).

Individuals with a high sense of efficacy view precarious situations as opportunities, while persons with low sense of efficacy view these same situations as intimidating and threatening (Bandura, 1977b). People with low self-efficacy may believe that things are tougher than they really are, a belief that fosters stress, depression, and a narrow vision of how best to solve a problem (Pajares, 2002b). Those who have a low sense of efficacy experience more anxiety (Kent & Gibbons, 1987), health problems, sleep disturbances, and heavy drinking (Bandura, 1997b).

A low sense of efficacy is associated with depression, anxiety, and helplessness (Bandura, 1997). The opposite of self-efficacy is self doubt, the belief that one lacks faith or confidence in oneself (Bandura, 1997). "Insidious self-doubts can easily overrule the best of skills" (Bandura, 1997, p. 35). Self-doubt is lacking the confidence to perform a specific task successfully, even when one possesses the necessary capability (Bandura, 1997). People who think they can perform well on a task do better than those who think they will fail (Bandura, 1997). Bandura discovered in his work with phobics that "the strength of people's conviction in their own effectiveness is likely to affect whether they will even try to cope with a given situation" (1977b, p. 193).

Efficacy beliefs have to do with perception of capability as opposed to the actual level of competence one possesses (Bandura, 1997). As mentioned before, possessing a strong sense of efficacy does not come about by standing in front of the mirror practicing the "incantation of capability" (Bandura, 1997, p. 115); saying it so does not make one have self-efficacy. Self-efficacy is influenced by the acquisition of skills; it is not merely a reflection of them (Bandura, 1993). Just because an individual knows what to do in specific contexts does not necessarily mean the person will do what is required. The decision to act is concerned with perceived ability, not actual ability. Self-efficacy is not simply a matter of how capable one is, but of how capable one believes oneself to be on a particular task (Bandura, 1997).

Conceptual differentiation between self-efficacy and similar constructs is important to predictive validity, as many use these terms interchangeably (Pajares, 1996). Conceptual differences are not always apparent between self-concept, self-esteem, locus of control, and self-confidence. Nonetheless, each construct is separate from self-efficacy because what distinctively sets self-efficacy aside from the others is that self-efficacy is inherently a task-specific or context-specific assessment of a competence to perform a particular action (Bandura, 1997). The others are defined globally yet are less context dependent (Pajares, 1996); that is, they can be domain specific but not task specific (Pajares, 1996).

Pajares (1996) links self-concept with social and self-comparisons, using internal and external comparisons to determine self-worth. It is a composite view of oneself that is concerned with global self-image, which does not have predictive ability.

Gist and Mitchell (1992) consider self-esteem as a trait reflecting an individual's evaluation of self. According to Bandura (1997), self-esteem is concerned with judgments of self-worth and self-liking, not self-efficacy. People can be both inefficacious and possess self-esteem at the same time. Alternatively, people can have low self-esteem but have high self-efficacy beliefs. The self-esteem literature has not shown that it can be significantly predictive. Pajares (2000) concluded from several studies that the relationships between self-esteem and student achievement were mixed, insignificant, or absent.

Self-efficacy is most malleable early in learning (Bandura, 1997), in younger or novice teachers, and once established becomes quite stable and resistant to change over time and as one matures (Tschannen-Moran et al., 1998). However, even in the best mastery experiences, people are resistant to change. Positive experiences do not alter firmly held low self-efficacy beliefs easily, especially when the belief serves as a protective or defensive function (Bandura, 1977b).

Origins of teacher self-efficacy. Dissatisfaction with findings about teacher behaviors stimulated educational research into the thinking and beliefs of teachers (Hoy & Murphy, 2001). Some researchers suggested that beliefs are the best indicators of the decisions individuals make throughout their lives (Hoy & Murphy, 2001; Pajares, 1992, 1996). Teacher's beliefs influence their perceptions and judgments and affect their behavior in the classroom (Ashton & Webb, 1986; Nespor, 1987). Efficacy beliefs shape

teacher preparation programs (Pajares, 1992) and serve as filters through which learning takes place (Hoy & Murphy, 2001).

The earliest reference to "teacher efficacy" in the Educational Resources Information Center (ERIC) system is a study by Barfield and Burlingame in which efficacy is defined as "a personality trait that enables one to deal effectively with the world" (1974, p. 10). Results from two studies published by Research and Development (RAND) support efficacy not as a trait but as a construct specific to given contexts (Amor et al., 1976). RAND defined efficacy as "the extent to which the teacher believes he or she has the capacity to affect student performance" (Berman, McLaughlin, Bass, Pauly, & Zellman, 1977, p. 137).

The RAND studies used Rotter's social learning theory, with specific emphasis on locus of control as its theoretical base. Locus of control theory generally refers to the extent to which an individual believes his or her behavior determines specific life events (Rotter, 1966). Individuals with an internal locus of control tend to believe they are in control of their destinies and able to cause certain events, whereas those with an external locus of control tend to believe that events are caused by factors beyond their control: fate, luck, or powerful others (1966).

The RAND researchers added two items to an already extensive questionnaire, which gave them powerful results, and the concept of teacher efficacy was born (Amor et al., 1976). Their inspiration for the two items came from an article by Rotter (1966) entitled "Generalized Expectancies for Internal Versus External Control of Reinforcement." The researchers at RAND intended the two items to assess whether a

teacher believed that two reinforcers, student learning and motivation, were under the teacher's control (Henson, 2001).

The first item stated, "When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment" (Amor et al., 1976). Teachers who agree with this statement believe that reinforcement lies outside their control or is external to them, that environmental factors overwhelm any power that teachers can exert on what a student is learning (Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2001). Researchers labeled teachers' beliefs about the power of these external factors as general teaching efficacy (Tschannen-Moran et al., 1998).

The second RAND item stated, "If I really try hard, I can get through to even the most difficult or unmotivated students" (Amor et al., 1976). Teachers who agree with this statement believe that reinforcement of their teaching efforts lies within the teacher's control, or is internal, and express confidence in their ability to overcome factors that could make learning difficult for students (Tschannen-Moran et al., 1998). Gibson and Dembo (1984) labeled this aspect of efficacy as personal teaching efficacy. It is more specific and individual than a belief about what teachers in general can accomplish. The survey asked teachers to indicate their level of agreement with each of the two items. The sum of the scores on the two items was called teacher efficacy, "a construct that purported to reveal the extent to which a teacher believed that the consequences of teaching – student motivation and learning – were in the hands of the teacher, that is, internally controlled" (Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998, p. 205).

Over the next couple of decades, the success of the RAND studies piqued interest in these two items and formed the impetus for the proliferation of teacher self-efficacy definitions and measures, each improving on the previous one.

Ashton and Webb (1986) define teacher self-efficacy as personal beliefs about one's ability to help students learn, in addition to influencing teacher's efforts, creativity, and perseverance with difficult students. Guskey and Passaro (1994) defined it as a "teachers' belief or conviction that they can influence how well students learn, even those who may be difficult or unmotivated" (p. 628). Tschannen-Moran and Woolfolk Hoy, who developed the Teacher Sense of Efficacy Scale stated, "A teacher's efficacy belief is a judgment of one's capabilities to bring about desired outcomes of student engagement and learning, even among those students who may be difficult or unmotivated" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 783).

Spurred on by the success of the RAND studies, researchers sought to build on the notion of teacher efficacy measures. These measures included Guskey's (1981) Responsibility for Student Achievement (RSA); Rose and Medway's (1981) Teacher Locus of Control (TLC); Gibson and Dembo's (1984) Teacher Efficacy Scale (TES); Teacher Self-Efficacy Scale by Bandura (n.d.); and Tschannen-Moran and Woolfolk Hoy's (2001) Teachers' Sense of Efficacy Scale (TSES).

All these instruments measure a teacher's perception of ability and not actual ability. As Bandura made clear, teachers' perceptions of efficacy are judgments about capabilities, not actual skills, not about the actual caliber of competence (Bandura, 1997). These perceptions have powerful effects. They have a direct impact on the way teachers

teach. Perceptions of efficacy affect the types of learning environments teachers create and the level of academic progress their students achieve. Efficacy beliefs influence teachers' judgments about the different tasks they perform to bring about student learning. In addition, studies found a correlation between efficacy beliefs and the effort teachers invest in teaching, the goals they set, and their level of aspiration (Bandura, 1997; Tschannen-Moran et al., 1998; Tschannen-Moran & Woolfolk Hoy, 2001).

Efficacy beliefs influence teachers' persistence when things do not go smoothly and their resilience in the fact of setbacks (Tschannen-Moran & Woolfolk Hoy, 2001). Teachers with a strong sense of efficacy are open to new ideas (Berman et al., 1977). Strong self-efficacy beliefs enable teachers to be less critical of students when they make mistakes (Ashton & Webb, 1986). Teachers with a higher sense of efficacy exhibit greater enthusiasm for teaching (Guskey, 1984), have greater commitment to teaching (Coladarci, 1992; Jennett et al., 2003), and are more likely to remain in teaching (Glickman & Tamashiro, 1982).

The teacher with a high sense of efficacy will utilize effective coping strategies, follow a problem-focused strategy (Chwalisz et al. 1992), and generate positive thought patterns (Bandura, 1997). Teachers with low self-efficacy follow an emotion-focused problem-solving strategy, choose poor coping strategies, and harbor negative thought patterns (Bandura, 1997).

Teacher efficacy and student achievement. Among the many factors contributing to student achievement, researchers found teacher efficacy to be most salient from

empirical studies in predicting student achievement. Studies show a positive correlation between teachers' perceived efficacy and student achievement (Amor et al., 1976; Anderson, Greene, & Loewen, 1988; Ashton & Webb, 1986; Bandura, 1993). Furthermore, teacher perceived efficacy was predictive of achievement on the Iowa Test of Basic Skills (Moore & Esselman, 1992), the Canadian Achievement Tests (Anderson et al., 1988), and the Ontario Assessment Instrument Pool (Ross, 1992).

The first study that RAND published examined the success of several reading programs and interventions (Armor et al., 1976). The Board of Education of the Los Angeles Unified School District contracted with the RAND researchers to analyze the effects of the School Preferred Reading Program instituted 4 years earlier on the reading achievement of sixth grade Black and Mexican American students. This study, which involved 20 participating Los Angeles elementary schools, found teacher efficacy, defined as the "teacher's sense of being able to get through to students, their commitment and morale" (p. 38), positively affected African-American children's reading scores (Amor et al., 1976). Thus, the study found a strong correlation between teachers' perceived efficacy and students' reading achievement.

The second study published by RAND, referred to as the Change Agent Study, found teachers' perceived efficacy to be the most important variable determining the effectiveness of program implementation success (Berman et al., 1977). In addition, this study showed that teachers' perceived efficacy had a strong positive effect not only on student performance but also on the percentage of project goals achieved, the amount of

teacher change, and the continued use of project methods and materials after the project ended (Berman et al., 1977).

Because students of efficacious teachers have generally done better on achievement tests than students whose teachers had low self-efficacy (Henson, 2001), teachers with low self-efficacy beliefs probably will have a negative impact on students' achievement. However, according to Midgley, Feldlaufer, and Eccles (1989) only those students who also had low efficacy beliefs were vulnerable to low achievement.

Based on the RAND studies' items of internal and external control, this study (Midgley et al., 1989) classified teachers who expressed an optimistic (internal) perspective about affecting student achievement as "high-efficacy," whereas those who expressed a sense of futility (external) as "low-efficacy." This longitudinal study of the transition from elementary to junior high school found students with strong efficacy were not vulnerable to teachers with low self-efficacy, but students who struggled with self-doubts about their academic abilities suffered a decline in academic performances (1989). Thus, this further supports the relationship between student achievement and teachers' efficacy beliefs.

Teacher Beliefs Scale. Probably the most challenging question when developing an instrument to measure efficacy is determining the optimal level of specificity.

Some have attempted to operationalize a general self-efficacy belief as global confidence in one's coping ability across a wide range of situations (Lennings, 1994; Luszczynska et al., 2005; Scholz, Dona, Sud, & Schwarzer, 2002; Schwarzer, 1992).

General self-efficacy is contrary to Bandura's understanding of self-efficacy as a task-specific, context-specific construct (Lennings, 1994; Luszczynska, Gutierrez-Dona, & Schwarzer, 2005; Scholz et al., 2002). Luszczynska et al. define "general self-efficacy as the belief in one's competence to tackle novel tasks and to cope with adversity in a broad range of stressful or challenging encounters, as opposed to specific self-efficacy" (2005, p. 80).

Self-efficacy is most predictive of outcomes when it is specifically defined (Pajares, 1992). For example, teacher efficacy is situation specific, that is, both context and subject matter specific (Raudenbush et al., 1992; Ross, Cousins, & Gadalla, 1996). A teacher may feel competent in one subject and with a certain type of student and feel less competent in other subjects or with different types of students. If an instrument is too general in what it measures, it may lose predictive relevance (Bandura, 1997). What it purports to measure is obscure. Bandura (1997) disputes many studies that define self-efficacy in too general of terms.

Measures that are global and too general run the risk of transforming self-efficacy beliefs into a generalized personality trait (Pajares, 1992). To ensure predictability, researchers should assess self-efficacy beliefs at the optimal level of specificity that corresponds to the criterial task and the domain of functioning being analyzed (Pajares, 1996).

On the other hand, a measure too specific is in danger of losing its predictive power for anything beyond the specific skills and contexts being measured (Tschannen-Moran & Hoy, 2001). Self-efficacy is most predictive of behavioral outcomes when the

belief is task-specific and context-specific. When beliefs are broad and too general, it weakens the effect on outcomes (Bandura, 1986).

Bandura (1997) would argue that a general construct does not have the same predictive quality as self-efficacy in a particular task. The construct of general efficacy confuses confidence for self-efficacy and makes it out to be a generalized personality trait instead of the context-specific judgments Bandura suggests they are (Pajares, 1996). As a general construct that resembles confidence, it transforms self-efficacy into a generalized personality trait rather that the context-specific judgment developed by Bandura (1997). When defined as task specific, it becomes a strong predictor of outcomes in clinical domains (Bandura, 1977b), education (Ashton & Webb, 1986), and in organizations (Wood & Bandura, 1989).

When efficacy beliefs are globally assessed or do not correspond with the criterial tasks with which they are compared, their predictive value is diminished or nullified; when efficacy assessments are tailored to the criteria task, prediction is enhanced (Pajares, 1992). This is what guided Tschannen-Moran and Woolfolk Hoy (2001) in their development of their teacher self-efficacy scale.

In "Teacher Efficacy: Capturing an Elusive Construct," Tschannen-Moran and Woolfolk Hoy (2001) raised some difficult questions about the measurement of the construct of teacher efficacy before they proposed the development of a new teacher efficacy measure. Their analysis of Gibson and Dembo's TES (1984) found a lack of agreement on the meaning of the two factors personal teaching efficacy (PTE) and general teaching efficacy (GTE), and the two factors were not correlated (2001). To

prevent weak effects from measuring a too general construct, Tschannen-Moran and Woolfolk Hoy suggest that the measure of teacher efficacy "must assess both personal competence and an analysis of the task in terms of the resources and constraints in particular teaching contexts" (2001, p. 795). Following their analysis of several teacher efficacy scales, Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) challenged both the current conceptualization of teacher efficacy as a construct and psychometric properties of several predominant instruments in the field.

As a result, they developed a new teacher efficacy measure by doing three studies using participants from a seminar in the College of Education at Ohio State University. They explored several formats and decided on a measure based on Bandura's scale (n.d.). Tschannen-Moran, Woolfolk Hoy, and Hoy (1998) used their new instrument on 146 preservice teachers and 78 inservice teachers in the first study, 70 preservice teachers and 147 inservice teachers in the second, and 183 inservice teachers in the third study (2001). They called the new measure the Ohio State Teacher Efficacy Scale (OSTES). The final instrument had two forms, a long form with 24 items and a short form with 12 items. Tschannen-Moran, Woolfolk Hoy, and Hoy identified three factors that represent the "richness of teachers' work lives and the requirements of good teaching" (1998, p. 801): efficacy for student engagement, efficacy for instructional strategies, and efficacy for classroom management.

Tschannen-Moran and Woolfolk Hoy (2001) examined the construct validity of the OSTES's long and short forms by assessing the correlation of this instrument with

RAND items and Tschannen-Moran's adaptation of Gibson and Dembo's TES (1984). Total scores on the OSTES long form were positively correlated to both RAND items ($r = 0.18$ and 0.53, $p < 0.01$) as well as to both the PTE and GTE factors of the TES measure ($r = 0.64$, $p < 0.01$). It is superior to previous measures of teacher efficacy in that it has a fairly unified and stable three-factor structure (Tschannen-Moran & Woolfolk Hoy, 2001). In addition, it captures a broad range of pertinent teacher capabilities "without being so specific as to render it useless for comparisons of teachers across contexts, levels, and subjects" (Tschannen-Moran & Woolfolk Hoy, 2001, p. 802). In addition, according to Tschannen-Moran and Woolfolk Hoy's research, the strongest correlations between the OSTES and other measures are with scales that assess personal teaching efficacy and weak correlations between GTE and other efficacy measures, suggesting that the GTE subscale is the least capable in capturing the essence of efficacy (2001).

Due to separation issues with Ohio State University, Tschannen-Moran and Woolfolk Hoy (2001) decided to change the name to the Teacher Sense of Efficacy Scale (TSES). Today, they refer to it as the Teacher Beliefs Scale.

Construct of Collective Teacher Efficacy

Social cognitive theory extends human agency to the organizational level through collective efficacy (Goddard et al., 2000). Consequently, the formation of collective efficacy builds on the self-efficacy formulation of Bandura (1997). Collective efficacy is

"the group's shared belief in its conjoint capabilities to organize and execute courses of action required to produce given levels attainments" (Bandura, 1997, p. 477).

In the same manner, collective teacher efficacy (CTE) is an extension of individual teacher efficacy to the organizational or group level (Tschannen-Moran et al., 1998). Goddard et al. define perceived collective teacher efficacy as "the perception of teachers in a school that the efforts of the faculty as a whole will have a positive effect on students" (2000, p. 480). Like teacher efficacy, the major influences on collective teacher efficacy are assumed attributional analysis and interpretation of the four sources of information: enactive mastery experiences, vicarious experience, social persuasion, and affective states (Gist & Mitchell, 1992).

Bandura (1986, 1997) claimed four sources of self-efficacy formation: mastery experiences, vicarious experiences, social persuasion, and emotional arousal. Just as these sources are important to individual efficacy development, they are also fundamental to the development of group efficacy or collective efficacy. As an organization, members experience successes and failures. Successes build a strong belief in the group's sense of collective efficacy and failures undermine it. Organizations learn by experience whether they are likely to succeed in reaching their goals.

Teachers do not rely on direct experience as the only source of information about their collective efficacy beliefs (Goddard, Hoy, & Hoy, 2000). They learn about and hear stories of others' success or failure through their colleagues and the media. Organizations learn by observing other organizations (Goddard et al., 2000). Talks, in-services, and

professional development opportunities can influence teachers. The more cohesive a faculty, the more likely they can be persuaded by sound argument (2000).

Organizations or faculties have affective states. Just as individuals react to stress, so do organizations. Organizations with a robust sense of collective efficacy can tolerate pressure and crises and continue to operate without detrimental consequences. In contrast, organizations with a weak sense of collective efficacy react to stress and crises in dysfunctional ways, which reinforce their basic propensity for failure (Goddard et al., 2000). Faculties as a whole can misinterpret stimuli, sometimes overreacting, underreacting, or doing nothing at all (Goddard et al., 2000). Thus, the affective state of an organization has much to do with how the organization interprets challenges.

A sense of collective teacher efficacy is confidence in what the faculty can do in its school. This belief functions as a norm or standard by which each teacher measures his or her performance. For example, in the study of neighborhood safety by Sampson et al. (1997), these researchers found that the reason citizens' collective efficacy beliefs were linked to lower occurrences of neighborhood violence is because citizens felt an expectation for action that predisposed them to intervene to decrease violent activity.

One of the earlier studies on collective teacher efficacy showed a significant relationship between CTE and school level achievement (Bandura, 1993). Bandura defined "perceived collective efficacy as a group's shared belief in its conjoint capabilities to organize and execute the courses of action required to produce given level of attainments" (Bandura, 1997, p. 477). In his study, Bandura (1993) studied 79 schools and found that the stronger the staff's shared belief in their instructional efficacy, the

better the school performed academically. Bandura argued collective efficacy of teachers within a school varies greatly among schools and correlates with student achievement (1993). According to Goddard and Skrla, "a robust sense of collective teacher efficacy fosters student achievement by creating a school culture characterized by a norm of and an expectation for sustained effort and resiliency in the pursuit of school goals for student growth and development particularly academic achievement" (2006, p. 221).

As a group property, collective efficacy beliefs are not reducible to the sum of their parts; the group's sense of collective efficacy influences an organization's normative environment by encouraging certain actions and discouraging others (Goddard, Hoy, & Hoy, 2004). This is why a group's collective beliefs are more powerful than individuals' beliefs and can raise an individual's efficacy belief before an individual can influence the beliefs of the group (Goddard & Skrla, 2006).

In the previously mentioned study, Sampson, Raudenbush, and Earls (1997) found evidence for the importance of collective efficacy beliefs to group goals. They demonstrated that the more robust the sense of collective efficacy in city neighborhoods, the less likely was the occurrence of neighborhood violence. Due to neighborhood residents' strong collective efficacy beliefs, residents felt an expectation to intervene without hesitation to decrease violent activity (Sampson et al., 1997). Elsewhere, in a health care setting, Gibson (2001) found that the effectiveness of nursing teams correlated directly and positively to the team's perceptions of group efficacy assessed prior to the delivery of health care.

Collective teacher efficacy as shared beliefs. Social cognitive theory acknowledges "personal agency operates within a broad network of sociocultural influences" (Bandura, 1997, p. 6) and thus extends the analysis of mechanisms of human agency to the exercise of collective agency. A group's shared beliefs motivate the members to work together to produce desired effects (Bandura, 1993). How well a school functions as a social system relies heavily on the belief system of the faculty of that school (Kurz & Knight, 2004). From an organizational perspective, shared beliefs may help explain the differential effect that schools have on student achievement as well as school culture (Goddard et al., 2000). Shared beliefs mean that there is a degree of interdependence among member's judgments (Kurz & Knight, 2004). Perceptions of the collective competence of teachers is influenced by situations and events that happen within the group, and also on how others within the group perceive and convey the interpretations of these events (2004).

Collective teacher efficacy: school culture and school climate. School culture and school climate are two intangible concepts that can affect student learning. Peterson and Deal (1998) describe school culture as the underground stream of norms, values, beliefs, traditions, and rituals built up over time as people work together, solve problems, and confront challenges. This sense of group culture includes the perspective that it is a set of shared thoughts informed by collective teacher efficacy (Kurz & Knight, 2004). In addition, it includes the perspective that the rituals and routines exemplify the thoughts group members share (Kurz & Knight, 2004

Wagner (2006) defines school culture as the shared beliefs, attitudes, and behaviors that characterize a school. It is the accumulation of everyone's values and norms, a consensus of what matters, the sum of group's expectations, and the way everyone does business (Wagner, 2006). With school culture being the sum of the shared experiences both in and out of school that create community, its health or toxicity will positively correlate with the school's goal of student achievement (Wagner, 2006). Therefore, school culture shapes how people think, feel, and behave in schools.

Where school culture characterizes the district wide organization, school climate characterizes the organization at the school building and classroom level (Gonder & Hymes, 1994). School climate refers to the "feel" of a school and can vary from school to school within the same district (1994). It is more likely that changes at the school culture level can affect the climate at the building level positively or adversely (1994).

School climate was found to be responsible for student achievement according to New Detroit: The Coalition (2003). When students in Detroit schools felt a sense of community and belonging to their schools, they achieved higher scores on state achievement tests (2003). Furthermore, Moore and Waltman (2007) found that variables related to school climate, not school context, correlated with teacher pressure and student achievement. Therefore, teachers' efficacy beliefs have an important influence on the school climate, as well as the school culture.

Therefore, as an important component of the culture of schools, collective efficacy shapes the normative environment of schools (Goddard, Hoy, & Hoy, 2000). Found to be uncorrelated with the socioeconomic status of schools or gender and

educational level of the faculty, collective efficacy is positively related to student achievement (Tschannen-Moran & Barr, 2004). In addition, strong collective efficacy in a school can mitigate the potential effects from a schoolwide crisis (Goddard & Skrla, 2006). Alternatively, low collective teacher efficacy schools open the door for strong emotional responses, undermining the organizational ability to tolerate the pressures of such a crisis (2006).

In social cognitive theory, teachers' shared beliefs are a key determinant of school culture and climate. Collective efficacy beliefs concern the performance capability of a social system as a whole (Bandura, 1997, p. 469). Analogous to individual teacher efficacy, collective efficacy is associated with the tasks, level of effort, persistence, shared thoughts, stress levels, and achievement of groups (Goddard et al., 2000). According to Bandura (1993), collective efficacy is a property of schools simply because collective teacher efficacy partially explains the differential effect that schools have on student achievement (Goddard et al., 2000). As such, it is an imperative component of a school's culture.

Collective Teacher Beliefs Scale. The study by Goddard et al. (2000) based their scale on the Tschannen-Moran et al. (2001) Teacher Sense of Efficacy Scale discussed earlier. The population for this study comprised the elementary schools within one large urban school district. The results revealed that collective efficacy was predictive of mathematics and reading achievement (Goddard et al., 2000). In fact, the effect of collective efficacy in this study was greater in magnitude than that of any one of the

demographic controls for both achievement variables. This result showed that collective efficacy had a greater effect on student achievement than socioeconomic status (2000).

The measure showed an interrelation between the theoretical elements of task analysis and group competence, which formed a single, strong factor. These elements interact to "orchestrate a conception of collective teacher efficacy in a school" (Goddard et al., 2000, p. 501). Thus, all efficacy constructs – self, teacher, and collective – are future-oriented judgments about capabilities to act in specific contexts (Goddard, Hoy, & Hoy, 2004). It has to do with whether the individuals or group can orchestrate the thoughts and actions necessary to obtain their desired results (2004). Of all the factors that enter in the cognitive processing of efficacy-shaping information, research has overlooked the construct of automatic thoughts.

Tschannen-Moran and Barr (2004) developed the Collective Teacher Beliefs Scale because of concerns that the scale by Goddard and his colleagues (2000) artificially drives down the collective efficacy scores of schools in more challenging environments by its explicit measurement of task difficulty. Their study assumed that collective teacher efficacy referred to the collective perception that teachers make an educational difference to their students over and above the educational impact of their homes and communities (2004). Developed as an adaptation of the Teacher Sense of Efficacy Scale created by Tschannen-Moran and Woolfolk Hoy (2001), the scale measured a faculty's belief about its collective capability to influence student achievement.

Construct of Automatic Thoughts

The following is a review of the literature as it relates to automatic thoughts. The review will begin with a discussion of Beck's cognitive theory (1967, 1976) and the elements of schema and automatic thoughts.

Beck's cognitive model of psychopathology suggests that emotional and behavioral problems result from a maladaptive interpretation of external reality (Beck, 1991). Research and theory emphasized the role of cognition in the origin, maintenance, and treatment of psychopathology such as depression and anxiety (Beck, 1976). Nevertheless, it is applicable as well to both normal and clinical populations (Hollon & Kendall, 1980).

Beck identified cognitions as both beliefs and thoughts that mold behavior and emotions (1976). An individual's subjective assessment of life experience shapes and maintains fundamental beliefs or schemas about self. Secondary beliefs develop and function as rules or assumptions about self and the world in support of or in defense against early schemas. According to Kendall (1992), they include both errors in cognitive content (meaning) and cognitive processing (meaning elaboration).

They develop further into learned patterns of thinking which function to support core beliefs and assumptions. They act as generalizing, deleting, or distorting internal and external stimuli that in turn create cognitive distortions, which are both errors in cognitive content or meaning and cognitive processing or meaning elaboration (Beck, 1976).

Moreover, Beck believed that negatively oriented cognitions might predispose individuals to affective psychopathologies (1976). The central tenet is that

psychologically maladjusted persons think more negatively about themselves, their world, and their future (Beck, 1967, 1987). "I am worthless; everyone hates me; and nothing goes well for me" is the cognitive triad of depression (Beck, 1976). Consequently, modifying negative cognitions and beliefs has been a means for alleviating depressive states (Beck, Rush, Shaw, & Emery, 1979).

According to Beck (1976), stable core beliefs or schemata about the self, the world, and others develop because of early learning experiences. Schema is relatively enduring, with complex patterns of thoughts or deep cognitive structures that organize the principles of giving appraisal and meaning to experiences with regard to self, others, and the world. Developed during childhood, experiences confirm and maintain schemata throughout one's lifetime. Schemas are the lenses through which individuals see and construe their environment (Griffith, 2003). The key is that schema determines how experiences will be perceived and conceptualized and will guide subsequent perceptions and appraisals (Griffith, 2003).

Coded early in life and carried forward to the present, schema consists of organized elements of experiences. Early in life, schemas form a relatively cohesive and pervasive self-system capable of guiding and coloring subsequent perception and appraisals in the future (Beck, 1967, 1976). Schemata form the basis of current automatic thoughts.

The discovery of automatic thoughts came about while Beck observed the verbalizations and free associations of his depressed patients in psychoanalytic treatment (Beck, 1976). Sometimes unbeknownst to his patients, these peripheral thoughts played

an important role in the patients' psychic world, having a seemingly indelible effect on affect and subsequently behavior (Beck, 1991).

In Beck's model, automatic thoughts are considered results or products from the operation of schema (Beck et al., 1979). These automatic thoughts or cognitive products of a person's underlying schema may be misperceptions of objective reality, which are then called cognitive distortions (Beck, 1967, 1976). They are consistent with schemata core beliefs. Automatic thoughts or self-statements are actually more accessible to the conscious mind than schemata. Thus, as outputs of the information processing system, automatic thoughts are a conduit to how individuals perceive and construct their world (Calvete & Connor-Smith, 2005). In addition, Beck theorized that automatic thoughts help explain the cognitive influence on depressive disorders (Beck et al., 1979).

The Automatic Thoughts Questionnaire (ATQ) was predicated on Beck's (1967, 1976) model of depression, which suggests that habitual negative thinking, is key to understanding this pathology. Modifying negative beliefs and cognitions has been the treatment du jour (Beck et al., 1979). The ATQ is a 30-item inventory of negative or depressive self-statements that asked respondents to rate the frequency with which these self-statements occur over the period of a week (Hollon & Kendall, 1980). Research has indicated that both subclinical and nosologically classified depressives report significantly more negative thoughts on the ATQ than do nondepressed control subjects (Ingram & Wisnicki, 1988). The ATQ successfully discriminated between depressed and nondepressed clinical populations, demonstrating high internal reliability and strong

convergent and discriminant validity when compared to other measures (Hollon & Kendall, 1980).

Most instruments of self-statements measure the frequency and strength of negative cognitions in psychopathology. Even though research on negative automatic thoughts has dominated this genre, it has led to a curious interest in the role of positive automatic thoughts in the treatment of psychological distress (Ingram & Wisnicki, 1988). Ingram and Wisnicki (1988) contend that sometimes the degree of positive rather than of negative thinking is the key to adaptive and maladaptive functioning. Kendall (1983) proposed that critical in healthy functioning is the absence of negative thought rather than the presence of positive thought. Ingram and Wisnicki's (1988) study on assessment of positive automatic cognition supports this view.

The construct of positive automatic thoughts originated from Beck's cognitive model of depression (Beck 1967, 1976). Automatic thoughts are surface cognitions that consist of negative or positive thoughts that may be self-enhancing, accurate, or distorted, that may enter awareness or not, and that arise spontaneously and automatically without effort (Beck, 1967, 1976). In this model, Beck gives mental representations of the experiences of depressed patients the most emphasis in contributing to the clinical description, etiology, and treatment of the disorder (1967, 1976). This representation referred to in the theory is schemata about the self.

Beck's theory suggests the existence of positive schemata that may buffer the impact of stress. For example, Beck (1967) postulated the existence of positive self-concepts which, when activated, result in favorable self-regard. Later, Beck suggested

that positive schemas might serve as coping mechanisms. A positive schema "forms the basis for a healthy personality adjustment" (1976, p. 276).

Studies have examined the benefits of positive thoughts in stressful situations (Goodhart, 1985; Lightsey, 1994a, 1994b, 1997) and in situations where positive cognition moderates the relation between live stress and feelings of dysphoria (Bruch, 1997; Ingram & Wisnicki, 1988; Lightsey, 1994b). Although not specifically positive cognitions, variables such as self-enhanced beliefs, positive illusions, and optimism possibly have a positive influence on coping with stressful events (Scheier & Carver, 1992; Taylor & Armor, 1996; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000; Taylor, Lerner, Sherman, Sage, & McDowell, 2003).

The Automatic Thoughts Questionnaire-Positive (ATQ-P) assesses the occurrence of positive automatic thoughts (Ingram & Wisnicki, 1988). The Ingram and Wisnicki (1988) measure complemented the ATQ that used analogue research (N = 197 male, and 283 female San Diego psychology students). Results from this study suggest that positive automatic thoughts (PAT) may serve a coping function or buffer against distress from negative events; when PAT is scarce, the psychological condition deteriorates (1988).

Nonnegative thinking. Kendall (1982) postulated that a stronger relationship exists between the efficacious treatment of depression and the reduction in negative thinking, as opposed to the efficacious treatment of depression and an increase in positive thoughts. He called this pattern the power of nonnegative thinking (Kendall, 1982). In general,

studies on distressed youth have found the number of positive automatic thoughts less relevant to health than the absence of negative thoughts (Ronan & Kendall, 1997; Treadwell & Kendall, 1996).

Per the diathesis-stress hypothesis, vulnerability to depression occurs when dysfunctional beliefs or schemas interact with schema-congruent negative life events (Lightsey, 1994a). Therefore, neither dysfunctional beliefs nor stressful life events alone are sufficient to provoke depression (Lightsey, 1994a). Both are required in the equation, moderated by a cognitive appraisal process. According to Beck's cognitive model (1967), stress increases negative schemata or cognitions in mildly to moderately depressed individuals more than individuals who are not depressed.

Similarly, in Goodhart's study (1985), 173 college students completed an event-outcome appraisal questionnaire designed to make salient positive and negative thoughts about the outcomes of stressful events. She concluded that positive thoughts had an immediate effect on well-being but it did not have an enduring effect after an 8-week delay (1985). On the contrary, negative thoughts had an adverse effect on immediate well-being, as well as after a delay. Therefore, negative thoughts appear to be more salient on psychological well-being than positive thoughts in the end.

In the analogue research of Lightsey (1994a), the ATQ and the ATQ-P along with other scales were given to 71 undergraduate psychology students to test the notion that frequency of positive thoughts moderates the relationship between negative life events and dysphoria. The study suggested that frequency of positive automatic thoughts might buffer the relation between stress and depression.

In another study, Lightsey (1994b) found that positive automatic thoughts predicted future happiness, suggesting that they have an impact not only on immediate well-being but also on future well-being. Another result revealed that positive thoughts do not interact with stressful life events to predict depression (Lightsey, 1994b). However, although he stated it tentatively, positive thoughts about social self-worth may function as a stress buffer (Lightsey, 1994b).

Studies investigating a relationship between cognitions and psychopathology have focused on three distinct roles of cognition in determining psychological distress, suggesting that the most important factors may be the number of positive cognitions, the number of negative cognitions, or the relative balance of positive and negative cognitions (Amsel & Fichten, 1998).

Unfortunately, the results from studies on positive automatic thoughts have been mixed or inconclusive (Bruch, 1997; Burgess & Haaga, 1994; Calvete & Connor-Smith, 2005; Goodhart, 1985; Ingram & Wisnicki, 1988; Lightsey, 1994a, 1994b; Ronan & Kendall, 1997; Treadwell & Kendall, 1996). Notwithstanding, the presence of positive thoughts appears to be less salient to predicting psychological adjustment than the absence of negative thoughts (Kendall, Howard, & Hays, 1989; Ronan & Kendall, 1997; Treadwell & Kendall, 1996).

On the other hand, Beck has argued that frequent, intrusive, and relatively negative self-statements have a prominent role in precipitating psychopathology (Beck, 1967, 1976). Contrary to assumptions that the frequency of positive automatic thoughts is predictive of psychological adjustment, the absence of the negative self-statements

predicts optimum health (Kendall et al., 1989). This "power of nonnegative thinking" seems more able to differentiate nondistressed from distressed groups (Kendall, 1983).

Internal dialogue. Self-referent speech became the next subject in cognitive research (Schwartz, 1986). Characteristic of internal dialogue is asymmetrical relationships between positive and negative thoughts (Schwartz, 1986). Individuals direct internal comments, or what Socrates said is the mind talking to itself, to the self as its audience. Nevertheless, humans think in an internal dialogue (Meichenbaum, 1977) or self-talk (Ellis, 1962). Self-talk became the component of metacognitive processes (Schwartz, 1986).

Recognizing the relative limitations of relying exclusively on raw frequency scores for characterizing adaptive thinking (Amsel & Fichten, 1998), cognitive-behavioral researchers have capitalized on this positive-negative polarity. They have conceptualized cognitive factors in psychopathology such as rational versus irrational beliefs (Ellis, 1962), positive versus negative appraisals (Lazarus & Folkman, 1984), and positive versus negative self-statements (Meichenbaum, 1977), while others focused on one dimension alone (e.g., cognitive distortions: Beck, 1976; self-efficacy: Bandura, 1977).

Automatic Thoughts Questionnaire – Revised. Kendall developed the Automatic Thoughts Questionnaire-Revised (ATQ–R) after his review (1983) suggested that an examination of both positive and negative cognitions might be necessary to have a

greater understanding of health-pathology. Kendall et al. (1989) based its development on the hypothesis that the balance of positive and negative self-talk are differentially associated with psychological adjustment. It also became helpful in identifying depression separate from anxiety disorders. Evidence increased predictability with both analogue and hospitalized groups (1989).

Calvete and Connor-Smith's (2005) study (see also Calvete & Cardenso, 2002) identified four categories of automatic thoughts in the ATQ—R, Positive Thoughts factor included ten positive self-statements reflecting optimism and positive self-evaluations. Negative Self-Concept factor was comprised of 12 items related to negative self-evaluation, failure, and self-blame. Dissatisfaction factor included 11 items reflecting a negative view of circumstances and a desire for one's life to be different. Inability to Cope factor consisted of seven items suggesting helplessness and difficulties starting or completing actions. In their study, the kappa coefficients ranged from .90 to .97 for Positive Thoughts, Negative Self-Concept, and Dissatisfaction, and .79 for Inability to Cope.

The States of Mind Model

Schwartz and Garamoni (1989) suggest that a proportion of positive to negative self-statements better characterizes optimal emotional adjustment and that maladjustment occurs when this ratio shifts too far from the balance. Built on the notion of Kendall's concept of the power of nonnegative thinking, Schwartz and Garamoni (1989) were part of the movement away from the one-dimensional method of calculating frequency scores

for positive and negative self-statements. They developed a model consisting originally of five apparent states of mind that drew upon the golden section hypothesis (Benjafield & Adams-Webber, 1976), intrapersonal communication (Meichenbaum, 1977), as well as upon information theory and cybernetic self-regulation (1989).

In the states of mind (SOM) model, Schwartz and Garamoni (1989) posit that a better predictive measure of psychological adjustment would be the proportion or ratio of positive to negative thoughts. Schwartz and Garamoni (1989) associate adaptive psychological functioning with an optimal balance of positive to negative self-statements and dysfunction or maladjustment with a low ratio (1989). Consequently, others have confirmed that using ratios of self-statements of cognitions along with valenced thought frequencies provides a better discrimination between people who function well and those who do poorly (Amsel & Fichten, 1998; Glass & Arnkoff, 1997; Merluzzi, 1993).

The golden section hypothesis. The golden section hypothesis descriptively states, "that point on a line which divides it into two segments such that the smaller is to the larger as the larger is to the whole" (Benjafield & Adams-Webber, 1976, p. 11). This means the larger segment must be 62% of the line, dividing it into two segments, 0.62 and 0.38. Thus, the golden section hypothesis would predict that when persons make dichotomous judgments about a subject in terms of bipolar dimensions, they would tend to use positive adjectives 62% of the time, and negative adjectives 38% of the time (1976).

The golden ratio has been around for centuries, with Pythagoras credited with its development (Benjafield & Adams-Webber, 1976). Both the Pythagorean doctrine and Plato shed light on the golden section hypothesis such that "successful living consists in finding the right proportion or mix of opposing tendencies" (p. 11), and the proper balance of opposites results in Plato's "soul as harmony" (1976). Applied to self-statements, the optimal balance between positive and negative thinking approximates the golden section hypothesis of .618 (1976); put more simply, the hypothesis assumes that when people separate something into two, there is a natural tendency to estimate the larger proportion as .62 versus .38 (Benjafield & Adams-Webber, 1976)

More relevant to psychopathology and coping with stress is that salience, or the psychological impact of a piece of information such as an event, is in part a function of its rate of occurrence relative to other pieces of information (Ronan & Kendall, 1997). The psychological impact of a piece of information is potentially optimal when its frequency of occurrence approximates the golden section proportions of 38% versus 62%. People will make judgments positive versus negative, good versus bad, "so as to make negative events maximally striking" (Benjafield & Adams-Webber, 1976, p. 14). Therefore, this ratio is to help ensure that "negative events, taken as a whole, stand out as figures against a positive background" (Benjafield & Adams-Webber, 1976, p. 14). Thus, the golden section hypothesis suggests two notions: While persons construe most events positively, or rather are socialized to think positively, they "attempt to create harmony between positive and negative events such that the latter make a maximal contribution to

the whole" (Benjafield & Adams-Webber, 1976, p. 14); that is, negative information carries more impact (Bruch, 1997).

Based on the golden section hypothesis, the SOM model of Schwartz and Garamoni (1989) utilizes a single ratio reflecting the balance of positive (P) and negative (N) elements, P/(P+N); the ratio adds important information beyond reporting each dimension separately (Benjafield & Adams-Webber, 1976). Empirical data support the notion that nonpathological balance of positive to negative thinking is an internal dialogue of 1.6:1.0 (.62 to .38) ratio of positive and negative thinking (Kendall et al., 1989; Schwartz, 1986). This ratio of positive to negative thinking is an ideal and stable state of mind for coping with stressful events (Ronan & Kendall, 1997). Deviations from this optimal balance might invite problematic functioning (Schwartz, 1986).

This led Schwartz and Garamoni (1989) to assume that different ratios of positive to negative cognitions might characterize functional and dysfunctional groups. The terms positive and negative refer to either the evaluative-affective content or the functional impact of cognitions (Schwartz & Garamoni, 1989). Schwartz and Garamoni (1989) believed homeostatic set point ratios reflected cognitive balance, making them functionally related to psychopathology.

In the original five SOM categories, empirical data showed the three SOMs of Positive Dialogue (PD), Internal Dialogue of Conflict (IDC), and Negative Dialogue (ND) with set points fixed at .618, .500, and .382, respectively. Schwartz and Garamoni (1989) considered SOMs of Positive Monologue (PM) and Negative Monologue (NM) monologic in form without set points because there is no dialectical process. Hence,

SOM ratios greater than .618 and less than .31 categorized groups as psychologically maladjusted (Schwartz & Garamoni, 1989).

Balanced states of mind. However, additional research found that the model could not account for anomalous findings, which characterized optimal functioning by higher SOM ratios in the PM range of 70% to 85% (Bruch, 1997; Davison, Haaga, Rosenbaum, Dolezal, & Weinstein, 1991; Haaga, Davison, McDermut, Hillis, & Twomey, 1993). SOM ratios in the PM range were associated with adaptive, in contrast to maladaptive, functioning, as evidenced from treatment studies of agoraphobia (Michelson, Schwartz, & Marchione, 1991) and of smoking cessation (Haaga et al., 1993) as well as in assessment studies involving assertiveness (Bruch, Hamer, & Kaflowitz-Linder, 1992), social encounters (Fichten, Amsel, Robillard, & Tagalakis, 1991), and anxiety and depression (McDermut & Haaga, 1994).

As a result, Schwartz (1997) reformulated the SOM model (hereafter referred to as the balanced states of mind (BSOM) model) to differentiate it from the original because the SOM model, based on information-theoretic approach, did not specify balance values above 62%. Schwartz (1997) based the BSOM model on a theory of consciousness developed by mathematician-psychologist Vladimir Lefebvre (1985). Drawing upon Lefebvre's theory, Schwartz was able to generate additional balance points that redefine the value of 62% as a subnormal (coping) dialogue (Schwartz, 1997). This SOM is associated with successful coping dialogue with adaptive but not normal coping under stressful environmental conditions (Schwartz, 1997). The normal dialogue (72%) is

associated with healthy individuals in benign situations. The optimal dialogue (81%) characterizes healthy individuals in a positive mood who exhibit an optimistic outlook with optimal well-being (1997).

The BSOM model organized seven qualitatively distinct SOM categories that differentiate pathological, subnormal, normal, and optimal balances of positive and negative cognitions-affects (Schwartz, 1997). These SOMs, along with their respective ranges are Positive Monologue (.91 to 1.00), Positive Dialogue (.67 to .90), Successful Coping Dialogue (.59 to .66), Conflicted Dialogue (.42 to .58), Failed Coping Dialogue (.34 to .41), Negative Dialogue (.10 to .33), and Negative Monologue (.00 to .09) (1997). However, extensive validation of the reformulated norms remains to be done (see Friedman, Schwartz, & Haaga, 2002; especially, Schwartz, Reynolds, Thase, Frank, Fasiczka, & Haaga, 2002). Table 1 summarizes the reformulated balanced SOM categories.

Table 1

Balanced States of Mind Ratios

State of Mind	$P/(P + N)$	Hypothesized Characteristics
Positive Monologue	.91 -1.00	Excessive positivity; brief adaptation
Positive Dialogue	.67 - .90	Optimal functioning for coping with stress
Successful Coping Dialogue	.59 - .66	Adaptive but not optimal coping with stress
Conflicted Dialogue	.42 - .58	Associated with mild psychopathology
Failed Coping Dialogue	.34 - .41	Impaired self-esteem
Negative Dialogue	.10 - .33	Chronic negative rumination
Negative Monologue	.00 - .09	Complete despair

Note. Adapted from Friedman, Schwartz, and Haaga (2002).

The studies by Kendall et al. (1989) and Schwartz (1986) confirmed the notion that approximately a 1.7 to 1 ratio of positive to negative coping thoughts characterizes a psychologically healthy internal dialogue in functional groups, whereas distress occurs in mildly dysfunctional groups when the ratio is equal or too low (Bruch, 1997; Kendall, Howard, & Hays, 1989; Schwartz, 1986). In addition, with asymmetry between positive and negative coping thoughts, many have found negative thoughts have greater functional impact and are more likely to change because of treatment (Goodhart, 1985; Ronan &

Kendall, 1997; Treadwell & Kendall, 1996). In addition, the SOM model suggests the relative balance of positive to negative thoughts might moderate the influence of stress on individuals (Bruch, 1997).

One study examined self-efficacy and automatic thoughts (Olioff, Bryson, & Wadden, 1989). Olioff et al. (1989) combined both constructs of self-efficacy and automatic thoughts in a study ($N = 49$) of undergraduate students that looked at the constructs' ability to predict depressive symptoms. They found that students' self-efficacy and automatic thoughts "in performing the activity judged most important to academic success" predicted mild depressive symptomatology in undergraduates (Olioff et al., p. 359, 1989). This finding supported Bandura's argument that low self-efficacy has a dysphoric effect on mood (1982) as well as complements Beck's theory wherein "automatic thoughts or dysfunctional cognitions refer to non-specific self-referent cognitions" (Olioff et al., p. 355, 1989).

In a similar design but with different variables, Szentagotai and Freeman (2007) correlated automatic thoughts with irrational beliefs predicting distress in patients with major depressive disorder. Patients ($N = 170$) from a random sample completed three self-rated measures and one interviewer-based measure both before and after treatment. Szentagotai and Freeman (2007) found that automatic thoughts partially mediated the effects of irrational beliefs on distress. Previous empirical research maintained that irrational beliefs are core beliefs leading to specific automatic thoughts. In addition, evidence suggests that irrational beliefs affect automatic thoughts. Overall, in the Szentagotai and Freeman study, additional evidence supported a direct relationship

between irrational beliefs and distress unaccounted for by automatic thoughts. In this sense, this study suggested that automatic thoughts are an important component of the clinical picture (Haaga, Dyck, & Ernst, 1991).

If it were true that thoughts reflect activation of deeper beliefs (Ingram & Wisnicki, 1988), then beliefs not thoughts per se would serve as buffers to stress. When correlated with deeper beliefs, thoughts exert their moderating affect (Lightsey & Christopher, 1997). PATs may act as a buffer against significant distress, preventing depression from reaching significant levels (Ingram & Wisnicki, 1988).

Kendall et al. (1989) suggested that healthy adjustment in stressful events might be associated less with increases in positive thinking than with decreases in negative thoughts. Others propose that the presence of PAT may be less important in adaptive behavior than the absence of negative thoughts (Ingram & Wisnicki, 1988). Schwartz (1986) argued that the ratio of positive to negative thinking is critical in determining psychological dysfunction.

Construct of Stress

Poorly managed stress has gotten bad press, being blamed for depressive and anxious disorders (Monroe & Simmons, 1991), health problems (Miller, Chen, & Zhou, 2007), substance abuse (Montgomery & Rupp, 2005; Parker, 1995), absenteeism (Kyriacou, 2001), relationship problems (Parker, 1995), and occupational burnout (Maslach & Jackson, 1981). The understanding of stress is complicated and multidimensional, involving biological, cognitive, and environmental influences. Historically, theorists have

drawn on two assumptions to help understand the antecedents of psychopathology (Monroe & Simons, 1991). The first is that people who develop psychopathology differ premorbidly in their constitution from those who do not. The second assumption is the belief that stress is an important factor in the development of psychological disturbances. Yet not all people, even when exposed to the direst of environmental conditions, necessarily become ill.

These two ideas were brought together to form what has been known as the diathesis-stress hypothesis. Diathesis was a term for mental illness in the psychiatric literature over 100 years ago (Monroe & Simons, 1991). Nonetheless, the basic premise of this hypothesis is that stress activates a diathesis, transforming the potential of predisposition into a psychopathology (1991).

Early theorists predicated formulations of the diathesis-stress model on biological factors (Monroe & Simons, 1991). However, this model has expanded to include predispositions in the domains of cognitive or social vulnerabilities that also propose that the diathesis remains latent unless triggered by life stresses (Monroe & Simons, 1991). For example, an underlying vulnerability to depression may be present but not expressed until exposure to a sufficiently stressful precipitant or combination of precipitants occurs. Therefore, according to the diathesis-stress hypothesis, dysfunctional beliefs interact with stress and thereby can foster or activate depression (Beck, 1967).

However, Monroe & Simons (1991) challenge the diathesis-stress hypothesis. First, recent research suggests earlier views ignored the potential influence the diathesis may have on stress, that the diathesis may cause stress. Secondly, "there are cogent

reasons to suspect that diatheses influence the reporting and the generation of life stress" (Monroe & Simons, 1991, p. 407). This led Monroe and Simons (1991) to offer alternate views: stress and the diathesis together constitute conditions conducive to pathology, diathesis is the only necessary factor, and stress is the only necessary factor for pathology to develop. Either way, research has linked stress as antecedent to many health-related problems (Dedovic et al., 2005; Derogatis, 1987; Hobfall, 1989; Kobasa, 1979; Miller, Chen, & Zhou, 2007; Montgomery & Rupp, 2005; Parker, 1995; Pruessner, Hellhammer, & Kirschbaum, 1999; Selye, 1974; Wieclaw, Agerbo, Mortensen, & Bonde, 2006).

Stress is a construct with varied meanings in the literature, from emphasizing the environment to investigating personal resources. Some take a nomothetic view on defining stress, wherein there is general agreement as to what is stressful (Hobfoll, 1989)

Hobfoll contends that stress is not just an idiographic concept; stressors are real and universal, bringing broad agreement to what is stressful (Hobfoll, 1989). Researchers loosely borrowed the word from the science of physics to describe the forces within a physical object that serve to counterbalance externally applied forces (Hobfall, 1989). It is a major factor affecting people's lives, intimately tied with mental health, and linked to many problems of physical health. It is not new that stress has a significant impact on human health, having adverse effects, as seen in immune, psychological, metabolic, and cardiovascular variables (Pruessner et al., 1999; Selye, 1974; Wieclaw et al., 2006).

. Biologically, one of the physiologic markers of stress is activation of the hypothalamic-pituitary-adrenal (HPA) axis (Dedovic et al., 2005). The product of this activation, cortisol, is believed to be the major stress hormone in humans. Wide varieties

of stressors that can be of a physical, pharmacological, or psychological nature activate the HPA axis (Pruessner et al., 1999).

Hobfall (1989) views psychological stress as occurring as the product of confrontation with especially stressful events. Psychological stressors that provoke a cortisol stress response are the perception of uncontrollability and unpredictability (Dedovic et al., 2005). Moreover, the main determinants of what is stressful are perceptions (Hobfoll, 1989).

Theories of stress. There are many definitions of stress, along with several models of how to understand it, that this section explains. One of the pioneers in stress research, Hans Selye, coined the term in 1936. Selye (1974) suggested that stress is a nonspecific response of the body to any demand for change, and it is irrelevant whether the agent or situation faced is pleasant or unpleasant; what matters is the intensity of the demand for adaptation. He proposed a physiological model of stress referred to as the General Adaptation Syndrome (GAS). Selye (1974) contends that stress results in three stages of deterioration: an alarm reaction, the stage of resistance, and the stage of exhaustion. When stressed, an individual attempts to adapt to the situation hormonally and neurologically (Selye, 1974).

A significant contribution of Selye's research was the recognition that stressors affect individuals differently, based on endogenous factors or genetic predisposition and exogenous factors such as the physical environment (1974). Even so, one of the

limitations of Selye's work is that he conceived stress affecting individuals mechanically, overlooking an individual's cognitive processing of stressors.

Another view focuses on the sympathetic nervous system. In this model, stress can be acute or chronic (Parker, 1995). As in animals, an individual prepares to address the threat with an increase in adrenaline to activate cardiac blood and airflow. This is the fight-or-flight reaction. In acute stress, the body's response is fight or flight (American Institute of Stress, n.d.). Once the stressor has passed, the response becomes inactivated and levels of stress hormones return to normal. Frequently, however, stressors may linger for a long time, and individuals must suppress the urge to fight or flee. Stress becomes chronic; over time, ongoing stressful situations can put a strain on the body that may lead to serious performance and/or health consequences (Parker, 1995). However, the focus of the fight-or-flight reaction did not address the cognitive component of stress reactions.

A third model of stress defined stress as a reaction to the environment in which there is the threat of a net loss of resources, a net loss of resources, or lack of resource gain (Hobfall, 1989). Individuals strive to retain, protect, and build resources such as objects, personal characteristics, conditions, or energies valued by the individual.

Psychologically, stress is an interaction between environmental events, called stressors, and biological reactions, called stress responses (Parker, 1995). Stressors can be biogenic, such as strenuous exercise. Alternatively, stress can be psychogenic, as in the psychological interpretation placed on events like public speaking (1995). Kobasa defined a "stressful life event as one that causes change in, and demands readjustment of, an average person's normal routine" (Kobasa, 1979, p. 2). Derogatis (1987) defined stress

as a state of psychological pressure influenced by the interactions of personality mediators, environmental factors, and emotional responses.

In a meta-analysis by Montgomery and Rupp (2005) in which they explored the causes and effects of teacher stress, they developed an intra-individual model of teacher stress. The key premise of this model is that a teacher, reacting to external events, is the core agent throughout the entire model (2005).

According to the model, intra-individual processes comprise primarily the experience and evaluation/appraisal of external stressful events that have their sources in the teacher's work environment (Montgomery & Rupp, 2005). In addition, stressors in one's personal life may also influence the teacher's overall emotional, cognitive, and behavioral state (2005). Subsequent to the appraisal process, the teacher engages in active coping or passive coping strategies. Because of adopting a coping mechanism, the individual experiences a host of emotional responses, which are either positively oriented or negatively oriented.

Montgomery and Rupp hypothesized that the relationship between stress and coping mechanisms as well as between coping mechanisms, emotional responses, and burnout is stronger than the influences that background variables have on the coping process (2005). Although support for their hypotheses was weak, results suggested "emotions have a more central role for understanding the intricate relationship between stress, burnout, personality, and support variables" (Montgomery & Rupp, p. 483, 2005).

Psychological stress buffers. The literature on stress identified a few personality factors that serve as stress buffers, those resources that reduce or ameliorate the effects of stress, preventing it from exacerbating into burnout (Lightsey, 1994b; Taylor, Lerner, Sherman, Sage, & McDowell, 2003). Many have identified variables that serve as stress buffers: social support, job satisfaction, self-enhancing cognitions, optimism hardiness, resiliency, self-efficacy, and positive thinking (Lightsey, 1994b; Taylor et al., 2003) .

Hardiness and optimism are two constructs cited in the literature. Kobasa (1979) defined personality hardiness as a personal and worldview of coping positively with stress. Hardiness is a construction from the personality dispositions of a strong commitment to the self (1979). Hardiness includes a sense of challenge with vigorousness towards the environment (1979). In addition, it involves a sense of meaningfulness and internal locus of control that influence an individual's cognitive appraisal of a stressor and one's behavioral reaction to it (1979). Lower levels of alienation, Kobasa's idea of commitment, contributed to the resistance of the effects of stress (Holt, Fine, & Tollefson, 1987).

Optimism is another construct cited in the literature as a contributor to psychological well-being and a buffer to stress (Scheier & Carver, 1992). Dispositional optimism is couched in general expectancies and is defined as the tendency to believe that one will generally experience good vs. bad outcomes in life (1992).

Self-efficacy (Chan, 2002) and social support (Russell et al., 1987) have strong literary support for mitigating stress. In fact, according to Bandura, eliminating two major

stress reducers, perceived control and social support, from the workplace creates a stressful environment that saps job satisfaction" (Bandura, 1997, p. 465).

The transactional model of stress. Lazarus and Folkman (1984) developed the transactional model of stress. In their model, they address the environment, the person, and the coping responses that occur when an individual encounters stress. Their model looks at the reciprocal interactions in one's environment in relation to an individual's cognition and the behavioral response to stress. According to Lazarus and Folkman, "psychological stress is a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well being" (1984, p.19).

The judgment that a particular person-environment relationship is determined as stressful is contingent on cognitive appraisal (Lazarus & Folkman, 1984). It includes a primary appraisal of the environment, which categorizes the situation with its respect to one's well-being. There are three types of primary appraisal: irrelevant, benign-positive, and stressful. Therefore, to cope effectively with stress, a primary appraisal determines whether the situation represents harm or loss, threat of harm or loss, or challenge. It also involves a secondary appraisal, which assesses the individual's ability to deal with the stressful situation successfully, that is, if one has the required resource to manage the event without the least amount of loss to well-being.

The transactional model distinguishes between a problem-focused and emotion-focused approach (Lazarus & Folkman, 1984). The problem-focused approach is a

management of the situation itself. Emotion-focused approach is a regulation of one's emotions that result from the situation.

Stress response to perceived threats involves disturbed affect, motor-behavioral reactions, and changes of cognitive functioning adequacy, physiological changes, and psychosocial dysfunction. Thus, a transactional relationship ensues. Therefore, if a stressor does not outweigh an individual's ability to cope effectively, an individual can minimize the effects of stress. However, when coping is ineffective and the stress is prolonged, the effects of stress will be evident (Lazarus & Folkman, 1984).

One of the antecedents that influence a primary appraisal is the belief about exercising control of a situation with potential threat to well-being. Locus of control has an internal or external orientation. A person who views control as contingent upon his or her behavior has internal locus of control. When a person believes luck, fate, or others outside oneself controls the situation, it is external locus of control (Rotter, 1966). Stability refers to whether the cause of the event is permanent and stable or temporary and variable. Making causal attributions is another antecedent to primary appraisal whereby the individual makes causal statements about the event or situation (Weiner, 1979). Thus, according to Lazarus and Folkman, situational appraisals of control parallel Bandura's (1977b) concepts of outcome expectancy and self-efficacy, beliefs that some behavior will affect the outcome and that one can execute that behavior necessary to do so.

In social cognitive theory, stress reactions arise from low self-efficacy to exercise control over aversive threats and taxing demands (Bandura, 1997). Persons with low self-

efficacy harbor pessimistic or negative thoughts about their occupational environment, doubting their capability to overcome the effects of stressors in the workplace (Bandura, 1997). Therefore, what an individual considers an occupational stressor depends partly on the level of perceived self-efficacy (Matsue & Onglatco, 1992)

Therefore, one can view stress as a self-preservative reaction to perceived threats to regain balance and equilibrium. From a sociocognitive perspective, stress results from a relationship between the taxing demands of the environment, the resources to cope with these demands successfully, and the person's behavioral responses (Bandura, 1997; Lazarus & Folkman, 1984).

One study has shown that "the single most salient component to defining the stressful impact of an event appears to be the perception of the event as aversive by the person" (McGrath & Burkhart, 1983, p. 580). Bandura, too, sees perception as appraisal as he describes stress "in terms of task demands that tax or exceed the individual's perceived capability to manage them" (Bandura, 1997, p. 465). Thus, research has associated low self-efficacy beliefs with emotion-focused coping (Bandura, 1997; Chwalisz et al., 1992).

Chronic stress can lead to serious health consequences as well as psychological conditions such as depression or burnout. Originally discovered by field observations not from theory, burnout is a phenomenon observed as prolonged occupational stress among human service professionals. Research has supported a correlation between burnout and many environmental stressors (Brouwers & Tomic, 2000; Hastings & Bham, 2003; Russell, Altmaier, & Van Velzen, 1987). It includes exhaustion, cynicism, and reduced

professional efficacy. Burnout can erode the working relationship between teacher and student (Abel & Sewell, 1999; Hastings & Bham, 2003) and derail educational goal attainment (Abel & Sewell, 1999). Coping efficacy reduces the vulnerability to stress and depression in compromising situations and strengthens resiliency in adversity.

Teacher stress. Teaching is an intensely psychological process in which teachers' ability to maintain productive classroom environments, motivate students, and make decisions depends on their personal qualities and ability to create personal relationships with students (Pianta, 1999). The most cited sources of stress are student misbehavior, time spent in teaching related activities, relations with staff, children, and parents, students' attitude toward learning, and work conditions (Wilhelm, Dewhurst-Savellis, & Parker, 2000).

Several studies reported that schoolteachers undergo high levels of stress and burnout (Abel & Sewell, 1999; Brissie, Hoover-Dempsey, & Bassler, 1988; Brouwers & Tomic, 2000; Evers, Brouwers, & Tomic, 2002; Hastings & Bham, 2003). Among the various reasons teachers gave for leaving the profession, none has received more attention in the literature than burnout (Brouwers & Tomic, 2000; Chwalisz, Altmaier, & Russell, 1992). More than 30% of new teachers left the profession just after 3 years and more than 45% after their first 5 years; 534,861 teachers entered the 1999-2000 school year and 539,778 left in the 2000-2001 school year (Granziano, 2005).

Sources of stress have been student misbehavior (Hastings & Bham, 2003; Yoon, 2002), time pressures, poor working conditions, and poor school ethos/staff relations

(Abel & Sewell, 1999). Teacher characteristics associated with burnout are age, sex, and grade level taught (Russell et al., 1987). Stress affects teacher job satisfaction and teacher-student effectiveness (1999). Studies that focused on environmental factors contributing to burnout have identified lack of collegial and administrative support, workplace conditions, oversized classrooms, student behavior in the classroom (Hastings & Bham, 2003), disciplinary problems, time demands, clerical duties, financial constraints, and lack of educational supplies (Abel & Sewell, 1999), just to name a few.

In addition, teacher stress seems more prevalent in larger school systems (Green-Reese, Johnson, & Campbell, 1991). Studies show that about half the teachers today will leave the field in 7 years (Granziano, 2005). Additionally, research provides empirical support that teacher stress is related more to environmental events, specifically, teachers' perceptions of these events, than it is to personal or professional variables. Studies identified several variables such as the teacher's gender, age, level of education, number of students, and number of years teaching (Fimian, 1988; Green-Reese, Johnson, & Campbell, 1991; Montgomery & Rupp, 2005; Parkay, Greenwood, Olejnik, & Proller, 1988; Russell et al., 1987).

There is discussion in the literature of environmental events that contribute to teacher stress and burnout: disciplinary problems, student apathy, oversized classrooms, demanding or unsupportive parents, and lack of administrative support (Abel & Sewell, 1999; Brissie et al., 1988; Brouwers & Tomic, 2000; Sunderman et al., 2004). Teachers connect burnout with student misbehavior; for example, emotional exhaustion predicted student disrespect (Hastings & Bham, 2003). Conversely, Hastings and Bham's study

(2003) was inconclusive and could not find that student misbehavior and teacher burnout were reciprocally predictive, suggesting teacher burnout is driven in addition to student misbehavior by other variables. Longitudinal data show that self-efficacy may contribute to the development of burnout (Brouwers & Tomic, 2000). In addition, these studies agree with Jex et al. (2001) that an effective coping style accompanied with support helps prevent burnout. As far as protective factors, Russell et al. (1987) found that social support and the number of stressful events experienced predict teacher burnout.

Few studies have identified internal factors such as attitudes or beliefs towards work, self-esteem, job satisfaction, and perceptions of external factors. Studies have blamed factors such as inadequate preservice training, teacher attributions, personality characteristics and poor administrative oversight in the work environment for teacher attrition (Brissie et al., 1988; Kyriacou, 2001; Wilhelm et al., 2000).

Studies have associated the experience of stress with cognitive experience of perception, in which it results from the teacher's cognitive appraisal of events and circumstances (Ozer & Bandura, 1990). Research has associated low self-efficacy with apprehensive thoughts in the face of threatening situations (Ozer & Bandura, 1990).

For example, when Greenwood, Olejnik, and Parkay (1990) examined Rose and Medway's TLC (1981) and the two RAND items, their results suggested a relationship between stress, negative thinking, and teacher efficacy. Greenwood et al. (1990) found that teachers low in both personal and general efficacy (I cannot, teachers cannot) had significantly higher stress, whereas teachers with low personal but high general efficacy (i.e., I cannot, teachers can) or teachers with both high personal and high general efficacy

(i.e., I cannot, teachers can) had significantly lower stress. Teachers who perceive themselves as inefficacious in coping with taxing environmental demands tarry over their personal deficiencies and imagine potential difficulties as more intimidating than they really are (Beck, 1976; Lazarus & Folkman, 1984; Bandura, 1977; Bandura, 1997). Thus, the results from Greenwood, Olejnik, and Parkay (1990) suggest that teachers with low self-efficacy are vulnerable to negative automatic thoughts that lead to unmanaged stress. It requires a strong sense of efficacy to remain task oriented in the face of pressing situational demands and failures that have social repercussions (Bandura, 1993)

Consequences of dealing with educational stressors are extensive and universal. In a United Kingdom survey done in 2000, 40% of teachers who responded reported having visited their doctor with a stress-related problem, while 25% suffered from serious stress-related health problems such as hypertension, insomnia, depression, and gastrointestinal disorders (Jarvis, 2002). In Hong Kong, teacher stress has received increased public attention with greater research in the areas of teacher dissatisfaction, turnover, and burnout (Chan, 2002). Dutch teachers in the Netherlands reported they are least able to cope with job-related workloads in comparison with other professions with more teachers going on disability (Brouwers & Tomic, 2000; Evers et al., 2002). In the United States, more than 30% of new teachers leave the profession just after 3 years, while more than 45% leave after their first 5 years (Granziano, 2005). Moreover, in the United States, recent legislation may have raised the bar, inviting higher stress levels and giving teachers new reasons to leave the field for good.

In 1983, the National Commission on Excellence in Education published *A Nation at Risk* to address the crisis in public education (National Commission on Excellence in Education, 1983). The upshot of the report was that all educational systems must adopt more rigorous and measurable standards and higher expectations for academic performance (1983).

In 2001, the U.S. government introduced legislation that will hold teachers and schools accountable for their students' performance on state mandated testing; if standards are not met, schools and teachers will face severe consequences, loss of government funding, and jobs (Compliance With the No Child Left Behind Act of 2001, 2003; White House, n.d.). Educators may link teachers' performance evaluations to how well their students achieve. Furthermore, teacher stress is compounded by increased workloads (Kohn, 2005), teacher shortages (Mandel, 2006), and attrition (Granziano, 2005). Teachers feel compromised, having to rethink instruction and manipulate the curriculum to teach to the test at the expense of not covering other important subjects (Boaler, 2003; Abrams, Pedulla, & Madaus, 2003).

Teachers measure their performance success or failure by how well their students achieve. According to Bandura, "the task of creating learning environments conducive to development of cognitive competencies rests heavily on the talents and self-efficacy of teachers" (1997, p. 240). Teacher efficacy, as well as collective teacher efficacy, has a direct impact on student achievement (Amor et al., 1976; Ashton & Webb, 1986; Bandura, 1993; Goddard et al., 2000). Therefore, one can draw the obvious conclusion

that student performance vis-à-vis teacher performance is contingent on teacher's sense of efficacy.

However, mitigating factors such as educational stressors, along with the additional pressure to meet accountability standards and teachers' negative perceptions towards high stakes testing (Abrams et al., 2003) have a role in the cognitive processing of efficacy-shaping information. Undoubtedly, a stressful environment is challenging, and different factors, such as task difficulty, class size, and pupil program, can exacerbate it.

Elementary school teachers and stress. Elementary school teachers work with children between the ages of 5 through 11, first through fifth grades. Some schools include sixth grade in their elementary facility. Elementary school teachers experience more stress and have different coping strategies than teachers responsible for higher grades (Pedulla et al., 2003). There are a few reasons that stress elementary teachers. First, third grade teachers are responsible for getting their students ready to take the state assessments required by the No Child Left Behind legislation. Teachers are feeling the pressures to get students ready as early as kindergarten; therefore, teachers are feeling stress as early as the first grade.

Second, elementary schools differ in their philosophy, structure, and grade configuration from middle and secondary schools. Elementary schools teachers are often required to spend long hours isolated with the same group of children and have few respite opportunities during the day. Goddard has characterized elementary schools at

best as intimate working groups because of shared goals and similarity of teaching roles across positions (1998). Because elementary teachers have a close connection with a small group of students and because teachers are typically responsible for most, if not all, core subject areas, it is likely they feel more pressure than high school teachers do (Moore & Waltman, 2007).

Third, students of color do better on achievement tests when their teachers are also of color (National Collaborative on Diversity in the Teaching Force, 2004). However, there is not a single teacher of color on staff in more than one third of public schools (National Collaborative on Diversity in the Teaching Force, 2004). According to the National Education Association (NEA), 89% of public school teachers are White and about 80% are female (National Collaborative on Diversity in the Teaching Force, 2004). Therefore, the burden of raising minority students' achievement falls heavily on White teachers, another reason for added stress in the public schools.

Efficacy of thought control. Bandura has said that people live in their heads, which in reality is a psychic environment of their own making (Bandura, 1997). Bandura believes initial thought shapes what individuals set out to do (1997). Therefore, people have the capacity to manage their thought processes (1997).

Even though some individuals can control what they think, others feel helpless to prevent intrusive and negative thoughts from influencing their activity (Bandura, 1997). Bandura deems exercising control over the conscious domain relevant to personal well-being, especially in the face of adverse situations (1997). According to Bandura (1997),

to the extent that people can manage what they think, they can affect how they feel and behave. Therefore, the capacity to divert attention away from unwanted thoughts plays a significant role in the maintenance of emotional well-being (Bandura, 1997; Kent, 1987; Kent & Gibbons, 1987; Ozer & Bandura, 1990).

Bandura suggests that self-efficacy beliefs have an impact on how an individual thinks (1988, 1997). Self-efficacy beliefs not only influence emotions and behaviors, they also affect thought patterns (Bandura, 1982, 1997) and intrusive thoughts (Kent, 1987; Kent & Gibbons, 1987). Elsewhere, self-efficacy beliefs have been associated even with negative automatic thoughts in one study examining the role of thoughts on mild depressive symptoms (Olioff et al., 1989).

Persons with strong cognitive efficacy control what they think, while those with low cognitive efficacy may feel victimized by intrusive and distracting thoughts (Bandura, 1997). Individuals with a low sense of self-efficacy to control what they think experience more distress from unwanted intrusive thoughts (Bandura, 1997; Kent, 1987; Kent & Gibbons, 1987; Ozer & Bandura, 1990).

According to Bandura, failures of thought control exacerbate many human distresses (1988). Depressed persons are notorious for not being efficacious in ridding their minds of negative thinking, as well as too good at eliminating positive automatic thoughts (Bandura, 1997). Therefore, perceived thought-control efficacy, as well as perceived coping efficacy in the context of appraising stressful situations, is important in controlling dysfunctional apprehensive cognitions to maintain optimal performance (Bandura, 1988)

According to Bandura (1997), four characteristics affect the impact of intrusive thoughts: frequency, intensity, acceptability, and controllability (1997). Everyone experiences intrusive thoughts now and then. However, persons with efficacious cognitive control experience less intense thoughts and find their existence acceptable because they are controllable.

Kent & Gibbons (1987) extended Bandura's self-efficacy theory to the control of intrusive thoughts. They found that the major source of distress was not the frequency of intrusive or ineffectual thoughts but the perceived inefficacy to turn them off (1987). Bandura (1997) affirmed that people who have strong self-efficacy to control their thoughts are less distressed.

Two studies demonstrated support for thought control efficacy. Ozer and Bandura (1990) investigated cognitive-control efficacy and coping efficacy by studying the effects of personal empowerment over physical threats in women. Results showed that mastery modeling enhanced coping efficacy as well as reduced the incidence of intrusive negative thoughts (Ozer & Bandura, 1990).

In the second study, Kent & Gibbons (1987) explored dental anxiety and participants' self-efficacy to control intrusive or negative thoughts. The qualifier "negative" in this study is a generic adjective, so specific thoughts were not identified. Results of this study showed that the frequency of negative thoughts did not determine the level of anxiety. Rather, it was whether the participants believed they had the capacity to control negative thoughts (Kent & Gibbons, 1987). The study showed that "having many negative thoughts is not necessarily related to high anxiety if the ability to control

them is high, and having few negative thoughts can be associated with high anxiety if they are relatively uncontrollable" (Kent & Gibbons, 1987, p. 38). More importantly, they demonstrated that the experience of dental anxiety is similar to feelings of control or loss of control over thinking content (1987)

Kent (1987) was able to duplicate his findings in another study, this time using a patient population and examined thought control efficacy in addition to anxious thoughts and behavioral and physiological symptoms of anxiety. Both studies (Kent 1987; Kent & Gibbons, 1987) lay the foundation that self-efficacy generalizes to reducing not just anxious thoughts but negative ones, as well as those thoughts that contribute to distress.

Hence, in a triadic reciprocal causal model of behavior, self-efficacy beliefs influence thought patterns, which in turn can influence emotions (Lazarus, 1984) that enable actions in which people expend substantial effort in pursuit of goals, persist in the face of adversity, rebound from temporary setbacks, and exercise some control over events that affect their lives (Bandura, 1986, 1993, 1997).

The self-regulation of thought control, therefore, plays a significant role in the maintenance of emotional well-being. When thought control is weak, an individual is vulnerable to the impact of environmental stressors. For example, teachers' efficacy beliefs as a major contributor to student achievement may be vulnerable in stressful academic settings (Amor et al., 1976; Anderson, Greene, & Loewen, 1988; Ashton & Webb, 1986; Berman et al., 1977).

Thus, as a malleable construct, teachers' efficacy beliefs along with automatic thoughts become important for analytical study in relation to the effects of stress (Betoret,

2006; Hutchinson, 1998; Jarvis, 2002; Jennett, Harris, & Mesibov, 2003; Parkay et al., 1988; Wisniewski & Gargiulo, 1997).

One study found a predictive relationship between automatic thoughts and student efficacy in mitigating the mild depressive symptoms (Olioff et al., 1989). Olioff et al. (1989) combined both constructs of self-efficacy and automatic thoughts in a study of undergraduate students ($N = 49$) that looked at their ability to predict depressive symptoms. They found that students' self-efficacy and automatic thoughts "in performing the activity judged most important to academic success" (Olioff et al., 1989, p. 359) predicted mild depressive symptomatology in undergraduates. This finding supported Bandura's argument that low self-efficacy has a dysphoric effect on mood (1982) as well as complementing Beck's theory wherein "automatic thoughts or dysfunctional cognitions refer to non-specific self-referent cognitions" (Olioff et al., 1989, p. 355).

In a similar design but with different variables, Szentagotai and Freeman (2007) found a significant relationship between automatic thoughts and irrational beliefs, which predicted distress in patients with major depressive disorder (Szentagotai & Freeman, 2007). Patients (N =170) from a random sample completed three self-rated measures and one interviewer-based measure both before and after treatment. Szentagotai and Freeman (2007) found that automatic thoughts partially mediated the effects of irrational beliefs on distress.

Previous empirical research maintained that irrational beliefs are core beliefs leading to specific automatic thoughts. In addition, evidence suggests that irrational beliefs affect automatic thoughts. However, in the Szentagotai and Freeman study,

additional evidence supported a direct relationship between irrational beliefs and distress unaccounted for by automatic thoughts. In this sense, Haaga et al. (1991) suggested that automatic thoughts make up an important component of the clinical picture (Haaga et al., 1991).

If it were true that thoughts reflect activation of deeper beliefs (Ingram & Wisnicki, 1988), then these beliefs not thoughts per se would serve as buffers to stress. According to one study, thoughts exert their moderating affect only when they correlate with deeper beliefs (Lightsey & Christopher, 1997). Hence, while positive automatic thoughts may act as a buffer against significant distress, preventing depression from reaching significant levels (Ingram & Wisnicki, 1988), self-efficacy beliefs may have the stronger role in mitigating stress. Nevertheless, future research needs to explore the roles and impact of beliefs on thoughts and vice versa.

Teacher Stress Inventory. Fimian acknowledged that stress is not a single source or single symptom issue and that "it can be often defined in various empirical and non-empirical ways that would account for a number of factors or problems at any given time" (1984, p.278,). Maslach and Jackson (1981) identified three factors related to burnout: emotional exhaustion, depersonalization, and a lack of personal accomplishment. Others defined occupational stress in terms of job satisfaction, role conflict or ambiguity, teacher attitudes, and teacher burnout. Evident in Fimian's studies was years of teaching experience, respondent sex, respondents' educational levels, and whether or not respondents had conducted stress workshops (Fimian, 1987).

The Teacher Stress Inventory (TSI) developed by Fimian (1984) was normed on two samples of special education teachers ($N = 370$; $N = 371$) and one sample of regular education teachers ($N = 433$) in the Vermont public schools during the 1980-1981 academic year to assess the frequency and strength of occupational stress. This 49-item scale began with six factors and later added four more, with two categories: Sources of Stress and Manifestations of Stress. The TSI gives a total stress score with ten subscales that include Time Management, Work-Related Stressors, Professional Investment, Professional Distress, Discipline and Motivation, Cardiovascular Manifestations, Emotional Manifestations, Behavioral Manifestations, Gastronomic Manifestations, and Fatigue Manifestations (Fimian, 1988).

Mearns and Cain (2003) used the TSI in their study that examined the contribution of personality characteristics to teacher stress. Specifically, they were interested in teachers' negative mood regulation expectancies as predictors of their coping, burnout, and distress (Mearns & Cain, 2003). They found that higher stress on the job predicted greater burnout and distress; stronger negative mood regulation expectancies predicted more active coping and less burnout and distress (Mearns & Cain, 2003). However, they utilized the first 29 items of the TSI because it measured job stress, whereas items 29 through 49 appeared to measure distress, which Fimian (1984) referred to as manifestations of stress.

Integrating efficacy beliefs with automatic thoughts. The literature explored teacher self-efficacy, collective teacher efficacy, and automatic thoughts separately and

found associations with teacher stress. With the exception of a few studies (Goddard & Goddard, 2001; Kurz & Knight, 2004) on the relationship between teacher self-efficacy and collective teacher efficacy, research has not explored their relationship with the remaining constructs of automatic thoughts, BSOM, and teacher stress. For example, Olioff et al. (1989) theoretically linked the construct of automatic thoughts with self-efficacy and others hint at an association of automatic thoughts and collective efficacy (Bandura, 1997; Goddard & Goddard, 2001). In addition, one study suggested integrating the balanced states of mind model with self-efficacy (Davison et al., 1991). The review of research in these three areas suggests that there is a need to explore the relationship among the three constructs in the context of teacher stress.

To summarize, poorly managed teacher stress is a concern for teacher attrition, low morale, poor student achievement, and debilitating health problems. Training teachers in the ways of managing their cognitive activity and restructuring old beliefs may assist teachers in doing a more effective job with students. According to social cognitive theory (Bandura, 1986) and the transactional model of stress (Lazarus & Folkman, 1984), there may be a correlational relationship if not a direct one between teacher self-efficacy, collective teacher efficacy, and automatic thoughts/states of mind.

In schools that have a robust sense of collective teacher efficacy with teachers that have high self-efficacy, Gist and Mitchell (1992) assume that there is an increased likelihood of positive thinking and low stress in teachers.

However, research thus far has not determined whether the level of teachers' sense of efficacy, collective efficacy, and automatic thoughts make the teaching

experience less stressful.

Stress levels can vary widely even in identical situations for different reasons (Murphy & Schoenborn, 1987). Recently, interventions in stress management programs have emphasized modifications in cognitive processes such as appraisal of the environment and of the individual's ability to deal with the environment (Lazarus & Folkman, 1984; Meichenbaum, 1977, 1996).

Research Hypotheses

Hypothesis 1: There will be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale in elementary school teachers.

Hypothesis 2a: There will be a significant inverse correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and the frequency scores of automatic thoughts obtained on the Automatic Thoughts Questionnaire – Revised in elementary school teachers.

Hypothesis 2b: There will be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers.

Hypothesis 3a: There will be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the frequency scores of automatic thoughts obtained on the Automatic Thoughts Questionnaire – Revised in elementary school teachers.

Hypothesis 3b: There will be a significant positive correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers.

Hypothesis 4: There will be a significant inverse correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers.

Hypothesis 5: There will be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers.

Hypothesis 6a: There will be a significant positive correlation between the frequency scores of automatic thoughts as measured by the Automatic Thoughts Questionnaire – Revised and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers.

Hypothesis 6b: There will be a significant inverse correlation between the balanced states of mind ratio and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers.

CHAPTER 2

Methods

Participants

Participants were full-time subject teachers who taught in grades 1 through 5. The participants were employed in one of 15 York County school districts in south central Pennsylvania. Student teachers, substitute teachers, special education teachers, and art, music, and physical education teachers were not included.

There were 197 teachers present at ten faculty meetings, of which 66 agreed to participate and completed the questionnaires. One hundred fifty questionnaires were distributed to teachers who initially volunteered to participate in the study by show of hands during faculty meetings in their respective school. Of the 66 teachers that participated, 35 teachers came from six urban elementary schools, of which 50% did not meet adequate yearly progress (AYP). Thirty-one teachers were employed at four rural elementary schools, of which 100% met AYP. Racial student composition at the rural school consisted of 100% White students, while only 21% of the students at the urban schools were White.

Sixty-six participants completed the questionnaires (44% completion rate). There were 84.8% female and 15.2% male participants. The racial composition of the participants was Caucasian (98.5%) and 1.5 percent identified as Black.

The grade levels were broken down as follows: 25.8% first grade, 28.8% second grade, 19.7% third grade, 13.6% fourth grade, and 12.1% fifth grade. The mean number of years spent teaching was 14.18 with a median of 11 years. The range was from less than 1 year teaching to 35 years teaching.

The rural context included a school where less than 20% of the students receive state-subsidized meals; the urban context included a school where more than 80% of the students receive state-subsidized meals. As seen in Table 2, there were compositional differences and similarities between the school districts.

Table 2

Differences and Similarities Between Rural and Urban School Contexts

Category	Rural	Urban
Total number of participants	31	35
Total number of elementary schools	4	6
Total number of White participants	31	34
Participants' mean years teaching	13	11
Number of participants who taught first grade	8	9
Number of participants who taught second grade	10	9
Number of participants who taught third grade	6	7
Number of participants who taught fourth grade	4	5
Number of participants who taught fifth grade	3	5
Number of White students enrolled	100	21
Percentage of students who met AYP	100	50

Research Design

Two separate school districts participated in the cross-sectional study that involved completing four self-report questionnaires circulated at ten separate faculty meetings. The urban school district consisted of 35 participants who completed the

questionnaires. The rural school district consisted of 31 participants who completed the questionnaires. Thus, 66 elementary school teachers completed the study. Participants completed the questionnaires within two weeks, after which the questionnaires were collected. Each questionnaire consisted of several self-statement Likert items that measured one of the following constructs: teacher self-efficacy, collective teacher efficacy, automatic thoughts, and teacher stress.

A correlational design was used to examine the relationships among teacher self-efficacy, collective teacher efficacy, frequency of automatic thoughts, balanced states of mind ratios, and stress in elementary school teachers. A Pearson product-moment correlation coefficient was calculated to determine if a significant relationship existed between the total and scaled scores from teacher self-efficacy, collective teacher efficacy, automatic thoughts, and teacher stress. The BSOM ratios were converted to dichotomous variables; therefore, a point biserial correlation was used to measure the relationships between the BSOM ratios and teacher self-efficacy, collective teacher efficacy, automatic thoughts, and teacher stress. Since the sample can be easily divided into two groups, that is, participants who teach at either a rural or urban school, a multivariate analysis of variance (MANOVA) and an independent sample *t* test were conducted. A Box's M was conducted to test the homoscedasticity assumption in MANOVA, that is, the assumption that equal variance is the same for all categories (Keselman, Rogan, Mendoza, & Breen, (1980). Finally, a Wilks' lambda was calculated to test whether there are differences between the means of rural and urban elementary school teachers on a combination of total scores on the Collective Teacher Beliefs Scale, Automatic Thoughts Questionnaire–

Revised, and the Teacher Stress Scale. The Wilks' lambda is a direct measure of the proportion of variance in the combination of the dependent variables that is unaccounted for by the independent variable (Crichton, 2000).

Measures

Self-report questionnaires assessed teacher self-efficacy, collective teacher efficacy, frequency of automatic thoughts, and teacher stress. The balanced states of mind ratios were calculated from the positive/positive plus negative thoughts equation.

Teacher Beliefs Scale. Teacher self-efficacy was measured by using the Teacher Beliefs Scale–short form (TBS), originally called the Teacher Sense of Efficacy Scale, developed by Tschannen-Moran and Woolfolk Hoy (1998). This is a 12-item self-report that employs a nine-point continuum with anchors at 1 – Nothing, 3 – Very Little, 5 – Some Influence, 7 – Quite A Bit, and 9 – A Great Deal. There are three factors: Efficacy in Student Engagement, Efficacy in Instructional Practices, and Efficacy in Classroom Management. To determine subscale scores for each, unweighted means of the items that load on each factor are computed. These groupings are items 2, 4, 7, and 11 for Efficacy in Student Engagement; items 5, 9, 10, and 12 for Efficacy in Instructional Strategies; and items 1, 3, 6, and 8 for Efficacy in Classroom Management. To obtain the total score, the mean of all of the items was calculated. High teacher self-efficacy is defined as greater than one standard deviation above the mean ($M = 7$) and low is one or more

standard deviations below the mean (M.Tschannen-Moran, personal communication, May 21, 2007).

The alpha reliability for TBS was 0.90 (Tschannen-Moran & Hoy, 2001). Reliabilities for the teacher efficacy subscales were 0.86 for Instructional Strategies, 0.86 for Classroom Management, and 0.81 for Student Engagement. Sample items include, "How much can you do to get through to the most difficult students?" and "How much can you do to motivate students who show low interest in school work?"

Collective Teacher Beliefs Scale. Collective teacher efficacy was measured using the Collective Teacher Belief Scale (CTBS) to indicate a faculty's belief about its collective capability to influence student achievement. The scale contains two subscales: Instructional Strategies (IS) and Student Discipline (SD). Teachers were asked to rate items on a 9-point Likert scale with anchors at 1, 3, 5, 7, and 9, and ranging from "none at all" to "a great deal."

The following are examples of each subscale: "How much can teachers in your school do to produce meaningful student learning?" (IS). "How much can school personnel in your school do to control disruptive behavior?" (SD).

Tschannen-Moran and Barr (2004) developed the Collective Teacher Belief Scale because of concerns that the measure developed by Goddard et al. (2000) "artificially drives down the collective efficacy scores of schools in more challenging environments by its explicit measure of task difficulty" (2004). Tschannen-Moran and Barr (2004) developed the 12-item CTBS as an adaptation of the Teacher Sense of Efficacy measure

developed by Tschannen-Moran and Woolfolk Hoy (2001). To obtain the total score, the mean of all of the items was calculated.

In a factor analysis, the 12 items loaded on one factor, with factor loading that ranged from .79 to .58. When two factors were specified, the rotated factors divided along the predicted content, with factor loadings on the six items in the instructional strategies subscale ranging from .78 to .67 and the six items in the student discipline subscale ranging from .78 to .64. In a study of 66 schools, the 12-items CTBS demonstrated reliability of .97. The instructional strategies subscale showed a reliability of .96 and the student discipline subscale showed a reliability of .94 (Tschannen-Moran & Barr, 2004).

Automatic Thoughts Questionnaire–Revised. The frequency of automatic thoughts was assessed with the Automatic Thoughts Questionnaire-Revised (ATQ–R; Kendall et al., 1989) that was developed in a similar format to the ATQ (Hollon & Kendall, 1980). The ATQ was designed to assess the frequency of negative self-statements and the ATQ–P, positive self-statements. Kendall et al. (1989) designed the ATQ–R to assess the frequency and ratio of positive/positive-plus-negative self-statements

The ATQ–R is a 40-item self-report measure. Each item consists of a self-statement (e.g., "I'm worthless," "I wish I were somewhere else," "I'm luckier than most people," "I feel very happy"), which is rated on a 5-point scale of frequency of how often the thought occurred to the person in the previous week. Ratings range from 0 ("not at all") to 4 ("all the time"). It consists of 30 negative self-statements related to depression

and 10 positive statements. The ATQ–R is completed in either individual or group self-report administration, requiring 5 to 10 minutes to complete. The 40-item self-statements of positive and negative items are scored separately (P. C. Kendall, personal communication, April 5, 2007). ATQ–R scores are obtained by summing all responses, for a range of total scores of 30 to 150. According to Nezu, Ronan, Meadows, and McClure, (2000), cutoff scores were not available, but scores can be compared with norms listed in Hollon and Kendall (1980).

Balanced states of mind ratio. Schwartz and Garamoni (1989) identified seven states of mind; refer to Table 1 for ranges and descriptive features. The BSOM are the Positive Monologue, Positive Dialogue, Successful Coping Dialogue, Conflicted Dialogue, Failed Coping Dialogue, Negative Dialogue, and the Negative Monologue.

To compute BSOM ratios, scores from the ATQ–R were transformed to anchor them at zero, with scores ranging from o to 4 instead of 1 to 5 (Amsel & Fichten, 1998; Schwartz & Garamoni, 1989). BSOM ratio was computed by dividing positive self-statement scores by total positive plus negative self-statement scores. There are 10 positive self-statement items and 30 negative self-statement items on the ATQ–R. However, the ratio must be based on an equal number of positive and negative statements. Therefore, 10 negative statements were selected randomly from the ATQ–R by flip of a coin. The original SOM proposed that a ratio of .62 constituted optimum psychological functioning (Schwartz, 1986; Schwartz & Garamoni, 1989), but previous research indicated by the reformulated Balanced States of Mind model, a ratio of .81 is

considered optimum psychological functioning for coping with stress, .72 as normal, and .62 as subnormal (Schwartz, Reynolds, Thase, Frank, & Fasiczka, 2002).

Teacher Stress Inventory

The Teacher Stress Inventory (TSI), also named the Teacher Concerns Inventory, is an instrument that measures occupational stress in teachers (Fimian, 1984, 1988). The TSI distributed to participants is called the Teacher Concerns Inventory, not the Teacher Stress Inventory, as a way of minimizing attitudes and sensitization toward teacher stress information (Fimian, 1988).

Teacher's occupational stress levels were assessed using the Teacher Stress Inventory (TSI), consisting of 49 stress-related items, that takes about 15 minutes to complete. It is self-administered, with simple directions for completion provided on the form.

The TSI model is operationally defined in terms of 10 factors that comprise teacher stress (Fimian, 1988). The 10 subscales represent 10 stress-related problems for teachers (Fimian, 1984). Each subscale consists of three to eight items.

Each item consists of a self-statement rated on a 5-point Likert-type scale ranged from 1 ("no strength not noticeable") to 5 ("major strength extremely noticeable") for each of the 49 items. The following are examples of items included on the TSI: "I easily over-commit myself," "there is too much work to do," "I receive an inadequate salary for the work I do," and "I respond to stress by sleeping more than usual."

Teachers completed the three-page Teacher Stress Inventory circling the appropriate answer on the 1 to 5 rating scale. Most teachers calculated their own stress scores by following the instructions on the TSI; each subscale was summed separately and divided by the number of items in the subscale. This becomes the teacher's mean subscale score. The Total Stress Score was computed by summing the mean subscale scores, divided by 10.

All 49 items are equal to or exceed factor loadings of 0.35 (Fimian & Fastenau, 1990). Research by Mearns and Cain (2003) found that the TSI measured two variables in the ten subscales; five factors represent sources of stress, five factors represent manifestations of stress. Collectively, the 10 factors represent the construct "Total Stress."

According to Fimian (1988), the Teacher Stress Inventory is a valid and reliable measure of 10 factors of stress for school teachers: Professional Investment, Behavioral Manifestations, Time Management, Discipline and Motivation, Emotional Manifestation, Work-Related Stressors, Gastronomical Manifestations, Cardiovascular Manifestations, Fatigue Manifestations, and Professional Distress.

Fimian (1988) investigated four types of reliability: They are the (a) alpha or internal consistency, (b) test-retest, (c) split-half, and (d) alternate-forms. The alpha reliability estimates for each derived subscale and scale ranged from .75 to .88 (Fimian, 1988). The alpha for the total stress was 0.92 for regular education teachers (Fimian & Fastenau, 1990). Test-retest correlations ranged from .49 to .84 ($p = .001$) for the TSI subscales, and .76 ($p = .001$) for the total stress score (Fimian, 1988).

Intercorrelations among the derived subscale and total scale scores indicate that low to moderate positive correlations exist between and among these scores (Fimian & Fastenau, 1990). Pearson correlations (r) ranged from a low of 0.20 to a high of 0.62, with all correlations significant at or beyond the 0.001 probability level (Fimian & Fastenau, 1990).

Teacher survey. Teachers responded to eight questions that appeared at the bottom of the Teacher Beliefs Scale. Five of the eight questions were relevant for the study: 1) what is your gender, 2) what is your racial identity, 3) what grade level do you teach, 4) how many years have you taught, and 5) what is the approximate proportion of students who receive free and reduced lunches at your school. The response to this last question defined the school's context, rural (0% to 20%) or urban (81% to 100%).

Procedures

The researcher sent a letter to each of the 15 school superintendents that explained the study. The letter was followed by a phone call to the superintendent. The superintendent had the option of responding later by e-mail.

The administration office contacted the elementary school principals about the research study. The researcher coordinated with the elementary school principals a scheduled time to meet with the faculty. At the faculty meeting, the researcher briefly explained the study, the questionnaires, and anonymity. In order to meet the requirement

of anonymity, teachers were requested to refrain from disclosing personal identification on the forms, such as name, addresses, or social security numbers.

Teachers who agreed to participate had 2 weeks to complete the forms and return them in the sealed envelope to a designated box in the administrative office of the school. Teachers had approximately ten days to complete the questionnaires before their envelopes were collected from an enclosed box in the administrative office

CHAPTER 3

Results

The purpose of this study was to examine the relationships among teacher self-efficacy, collective teacher efficacy, automatic thoughts (frequency), the balanced states of mind ratio, and teacher stress. Elementary school teachers completed four questionnaires with adequate reliability and validity, as reported in the literature for each. Sixty-six teachers completed the Teacher Beliefs Scale (TBS), the Collective Teacher Belief Scale (CTBS), the Automatic Thoughts Questionnaire --Revised (ATQ–R), and 65 teachers completed the Teacher Stress Inventory (TSI).

Means and standard deviations for the four variables were calculated to determine the level of psychological functioning of the sample and for purposes of future research. Pearson product-moment correlation coefficient was used to calculate the total and subscale scores tallied from the four questionnaires. The BSOM ratio was converted to a dichotomous variable allowing a point biserial correlation to be used to measure its relationship to the other remaining variables. A MANOVA and independent samples *t* test were run as additional analyses to determine if mean differences existed on any of the obtained scores between the rural and urban schoolteachers.

For the purpose of this research, 111 participants were required to establish a power of .95 with significance set at .05. Observed power (.23) for this test was low, meaning there was only a 23% chance of detecting a significant relationship if one existed in the population.

Description of the Variables

The following is a description of the measured variables, that is, the total scores, subscale scores, and the BSOM ratio of positive to positive-plus-negative automatic thoughts.

TBS. Teachers completed the Teacher Beliefs Scale, which provides information regarding teacher self-efficacy (TSE). There are three subscales, Instructional Strategies (IS), Classroom Management (CM), and Student Engagement (SE). Possible scores on this scale could range from 1 to 9, with high teacher self-efficacy one standard deviation (SD = 1.008) above the mean (M = 6.92). The mean score of 6.92 falls within the typical range of teacher self-efficacy when compared to normative data. Table 3 provides the results of this analysis with specific attention to the subscale Student Engagement having the lowest mean.

Table 3

Teacher Beliefs Scale: Means, Medians, and Standard Deviations

Scale	*M*	*Mdn*	*SD*
TSE Total Score	6.92	6.83	1.00
Instructional Strategies	7.27	7.37	.98
Classroom Management	7.17	7.25	1.11
Student Engagement	6.49	6.25	1.26

CTBS. Teachers completed the Collective Teacher Beliefs Scale, which provides information regarding teachers' perception of other teachers' efficacy as a group. There are two subscales, Instructional Strategies and Student Discipline. Possible scores on this scale could also range from 1 to 9, with high collective teacher efficacy one standard deviation (SD = 1.165) above the mean (M = 7.03). The mean score of 7.03 falls within the typical range of collective teacher efficacy when compared to normative data. Table 4 shows the similar mean scores.

Table 4

Collective Teacher Beliefs Scale: Means, Medians, and Standard Deviations

Scale	*M*	*Mdn*	*SD*
CTE Total Score	7.03	7.05	1.07
Instructional Strategies	7.02	7.00	1.15
Student Discipline	7.01	7.41	1.31

ATQ–R. Teachers completed the Automatic Thoughts Questionnaire–Revised, which measures the frequency of 30 cognitive self-statements associated with depressed mood and 10 self-statements with positive affect. The higher the score, the more likely the individual is high on depressogenic thinking (P. C. Kendall, personal communication, April 4, 2007). Set end points from 1 to 5 were summed reversing the scores of the

positive items for a total frequency score. This produced a mean of 75.84 (*SD* = 23.25). Normative data was not available. Table 5 presents the mean, median, and standard deviation.

Table 5

Automatic Thoughts: Mean, Median, and Standard Deviation

Scale	*M*	*Mdn*	*SD*
ATQ–R Frequency Score	75.84	70.50	23.25

BSOM. The balanced states of mind ratio was derived from the ATQ–R. To calculate the ratio, 10 of the 30 negative self-statements were selected randomly by toss of coin to obtain an even number of positive and negative statements. The next step was to anchor end points at zero, with a range of 0 to 4 for each item, in order to reveal a wider spread of ratios, doubling the size of the standard deviations. This produced a range between .32 and .97, with more scores falling in the extreme ratios, raising the mean from .67 to .78. The BSOM ratio derived from ATQ–R sums produced mean ratios of positive/positive plus negative statements (*M* = .78, *SD* = .189) that fell within the Positive Dialogue range (.67 to .90). Table 6 presents the mean, median, and standard deviation.

Table 6

Balanced States of Mind Ratio: Mean, Median, and Standard Deviation

Scale	*M*	*Mdn*	*SD*
BSOM Ratio	.78	.86	.18

TSI. Sixty-five teachers completed the Teacher Stress Inventory, which provides information regarding teachers' perception of their sources of stress and ways their stress is manifested. The TSI includes 10 subscales, five measuring the causes of stress and five measuring the manifestations of stress. The global mean of 2.48 (*SD* = .582) falls within the normative data. Means, median, and standard deviation are summarized in Table 7.

Table 7

Teacher Stress Inventory: Means, Medians, and Standard Deviations

Scale	*M*	*Mdn*	*SD*
TSI Total Score		2.58	.58
Causes of Stress			
Time Management	3.42	3.50	.71
Work-related Stress	3.73	4.00	.97
Professional Distress	2.46	2.40	.84
Discipline/Motivation	3.07	2.80	1.09
Professional Investment	2.21	2.10	.87
Manifestations of Stress			
Emotional	2.57	2.20	1.18
Fatigue	2.59	2.40	1.03
Cardiovascular	1.97	1.66	1.10
Gastronomical	1.53	1.00	.97
Behavioral	1.43	1.00	.67

These findings suggest that, on average, participants' scores fell within normal ranges on all measures of psychological functioning.

Research Hypotheses

Hypothesis 1

Hypothesis 1 stated there would be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total scores from the Teacher Beliefs Scale (TBS) and Collective Teacher Beliefs (CTB) scale.

A correlation for the data revealed a significant relationship between teacher self-efficacy and collective teacher efficacy ($r = .731$, $N = 66$, $p < .01$, one tailed). Table 8 shows the significance across subscales.

Table 8

Pearson Correlation: Teacher Beliefs Scale and Collective Teacher Beliefs Scale With Subscales

	CTE	IS	SD
TSE	.731**	.748**	.664**
Instructional Strategies	.705**	.685**	.673**
Classroom Management	.598**	.623**	.579**
Student Engagement	.662**	.679**	.552**

**$p < .01$

Hypothesis 2 (a)

Hypothesis 2 (a) stated that there would be a significant inverse correlation between teacher self-efficacy (TSE) scores obtained on the Teacher Beliefs Scale and the frequency scores of automatic thoughts (AT) obtained on the Automatic Thoughts Questionnaire–Revised in elementary school teachers.

A correlation for the data revealed teacher self-efficacy (TSE) was inversely correlated with automatic thoughts (AT) where ATQ-R scores were anchored with end points of 1 to 5 ($r = -.284$, $N = 66$, $p < .05$, one tailed).

The subscales Instructional Strategies (IS) and Classroom Management (CM) are related inversely with automatic thoughts ($p < .05$). As shown in Table 9, a significant inverse correlation was revealed between the subscale Student Engagement (SE) and automatic thoughts ($r = -.321$, $N = 66$, $p < .01$, one tailed).

Table 9

Pearson Correlation: Teacher Beliefs Scale/Subscales and Automatic Thoughts Questionnaire–Revised

	TSE	IS	CM	SE
Automatic Thoughts	-.284*	-.280*	-.209*	-.321**

*$p < .05$

**$p < .01$

Hypothesis 2 (b)

Hypothesis 2 (b) stated that there would be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers. A point-biserial correlation (r_{pb}) was conducted on the total and subscale scores from the TBS and the calculated BSOM ratio derived from the ATQ--R.

A correlation for the data revealed a significant relationship between teacher self-efficacy (TSE) and the BSOM ratio where ATQ-R scores were anchored at zero with end points of 0 to 4, $r = .262$, $N = 66$, $p < .05$, one tailed.

In particular, Table 10 shows that a correlation for the data revealed a significant relationship between teacher self-efficacy and Positive Dialogue (PD), $r = .260$, $N = 66$, $p < .05$, one tailed, while an inverse relationship was found between teacher self-efficacy and the Successful Coping Dialogue (SCD), but it was not significant, $r = -.155$, $N = 66$, $p < .05$, one tailed.

In addition, a correlation for the data revealed that the relationship between teacher self-efficacy (TSE) and Positive Monologue (PM) was not significant at the $p < .05$ level ($r = .115$, $N = 66$, where $p < .05$, one tailed). In addition, it was revealed that the subscale Classroom Management (CM) did not correlate with Positive Dialogue (PD), $r = .180$, $N = 66$, $p < .05$, one tailed. As shown in Table 10, no significant correlations were found between TSE and Failed Coping Dialogue (FCD), $r = .139$, or Conflicted Dialogue (CD), $r = .136$.

Table 10

Correlation for the Teacher Beliefs Scale/Subscale with the Balanced States of Mind Ratios

	BSOM	PM	PD	SCD	FCD	CD
TSE	.262*	.115	.260*	-.155	-.139	-.136
Instructional Strategies	.209*	.131	.220*	-.106	-.154	-.135
Classroom Management	.194	.172	.180	-.145	-.071	-.112
Student Engagement	.315**	.001	.341**	-.188	-.136	-.157

* $p < .05$

** $p < .01$

Hypothesis 3 (a) stated that there would be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the frequency scores of automatic thoughts obtained on the Automatic Thoughts Questionnaire–Revised in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total score from the Collective Teacher Belief (CTB) scale and the total frequency score on the Automatic Thoughts Questionnaire–Revised (ATQ–R).

A correlation for the data revealed collective teacher efficacy (CTE) was inversely correlated significantly with automatic thoughts (AT) when ATQ–R scores were anchored with end points of 1 to 5, $r = -.225$*, $N = 66$, $p < .05$, one tailed.

The correlation for the data also revealed the subscale Instructional Strategies (IS) was inversely related significantly with automatic thoughts, $r = -.275$, $N = 66$, $p < .05$, one tailed. However, Table 11 shows that the Pearson's correlation did not find a significant relationship between the collective teacher efficacy subscale Student Discipline (SD) and automatic thoughts, $r = -.114$, $N = 66$, $p < .05$, one tailed.

Table 11

Pearson Correlation: Collective Teacher Beliefs/Subscales With Automatic Thoughts Questionnaire–Revised

	CTB	IS	SD
Automatic Thoughts	-.225*	-.275*	-.114

*$p < .05$

Hypothesis 3 (b) stated that there would be a significant positive correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total scores from CTB and the calculated SOM ratio derived from the ATQ–R.

A correlation for the data found that the relationship was not significant between collective teacher efficacy and the BSOM ratio when ATQ–R scores were anchored with end points of 0 to 4, $r = .196$, $N = 66$, $p < .05$, one tailed. A correlation for the data did

find that the relationship was significant inversely between collective teacher efficacy and Conflicted Dialogue (CD), $r = -.268$, $N = 66$, $p < .05$, one tailed.

In addition, a significant relationship was found between the Instructional Strategies (IS) subscale and Positive Dialogue (PD), $r = .285$, $N = 66$, $p < .05$, one tailed. As shown in Table 12, Student Discipline (SD) correlated significantly with Positive Monologue (PM), $r = .213$, $N = 66$, $p < .05$, one tailed.

Table 12

Correlations for Collective Teacher Beliefs Scale/Subscales With Balanced States of Mind Ratios

	BSOM	PM	PD	SCD	FCD	CD
CTB	.196	.200	.190	-.82	-.007	-.268*
Instructional Strategies	.255*	.124	.285*	-.148	-.041	-.261*
Student Discipline	.101	.213*	.116	-.099	.099	-.227*

*$p < .05$

Hypothesis 4 stated that there would be a significant inverse correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total and subscale scores from the TBS and the Teacher Stress Inventory (TSI).

A correlation for the data revealed a significant inverse relationship between teacher self-efficacy (TSE) and teacher stress (TS), $r = -.432$, $N = 65$, $p < .01$, one tailed.

Furthermore, a correlation for the data revealed a significant inverse relationship between the Student Engagement (SE) subscale and teacher stress (TS), $r = -.434$, $N = 65$, $p < .01$ level, one tailed. In addition, a correlation for the data found a significant inverse relationship between teacher self-efficacy and the TSI subscale, Discipline/ Motivation, $r = -.533$, $N = 65$, $p < .01$, one tailed.

A correlation for the data found a significant inverse relationship between teacher self-efficacy and the TSI subscale, Emotional Manifestations, $r = -.364$, $N = 65$, $p < .01$, one tailed. An even stronger inverse relationship was found between Student Engagement (SE) and Emotional Manifestations, $r = -.418$, $N = 65$, $p < .01$, one tailed.

A correlation for the data, however, did not find a significant relationship between teacher self-efficacy and Time Management, $r = -.071$, $N = 65$, $p < .01$, one tailed, as shown in Table 13.

Table 13

Pearson Correlation: Teacher Beliefs Scale With Teacher Stress Scale With Subscales

	TSE	IS	CM	SE
TS	-.432**	-.290**	-.379**	-.434**
Causes of Stress				
Time Management	-.071	-.044	-.063	-.044
Work-related Stress	-.240*	-.143	-.179	-.279*
Professional Distress	-.188	-.175	-.048	-.209*
Discipline/Motivation	-.533**	-.292**	-.513**	-.561**
Professional Investment	-.375**	-.193	-.340**	-.391**
Manifestations of Stress				
Emotional	-.364**	-.247*	-.263*	-.418**
Fatigue	-.330**	-.248*	-.270*	-.359**
Cardiovascular	-.151	-.022	-.219*	-.125
Gastronomical	-.214*	-.291**	-.236*	-.067
Behavioral	-.182	-.056	-.176	-.245*

*$p < .05$

**$p < .01$

Hypothesis 5 stated that there would be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and

teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total and subscale scores from the CTB and the TSI.

A correlation for the data revealed a significant inverse relationship between collective teacher efficacy and teacher stress, $r = -.331$, $N = 65$, $p < .01$, one tailed.

A correlation for the data revealed a significant inverse relationship between collective teacher efficacy and Discipline/Motivation, $r = -.342$, $N = 65$, $p < .01$, one tailed. In addition, a correlation for the data revealed a significant inverse relationship between collective teacher efficacy and Emotional Manifestations, $r = -.291$, $N = 65$, $p < .01$, one tailed. However, a correlation for the data failed to reveal a significant relationship at the $p < .05$ level between collective teacher efficacy and Professional Distress, $r = -.113$, $N = 65$, $p < .05$, one tailed.

A correlation for the data revealed a significant inverse relationship between Instructional Strategies and Discipline/Motivation, $r = -.414$, $N = 65$, $p < .01$, one tailed. In addition, a correlation for the data revealed significant inverse relationships between Instructional Strategies and Professional Investment ($r = -.344$, $N = 65$, $p < .01$), Emotional Manifestations ($r = -.352$, $N = 65$, $p < .01$), Fatigue Manifestations ($r = -.323$, $N = 65$, $p < .01$), and Gastronomical Manifestations ($r = -.226$, $N = 65$, $p < .05$), as shown in Table 14.

Table 14

Pearson Correlation: Collective Teachers Belief Scale/Subscales With Teacher Stress Inventory/Subscales

	CTE	IS	SD
TS	-.331**	-.395**	-.245*
Causes of Stress			
Time Management	-.306	-.118	.042
Work-related Stress	-.185	-.249*	-.150
Professional Distress	-.113	-.171	-.096
Discipline/Motivation	-.342**	-.414**	-.330**
Professional Investment	-.272*	-.344**	-.273*
Manifestations of Stress			
Emotional	-.291**	-.352**	-.158
Fatigue	-.275*	-.323**	-.173
Cardiovascular	-.167	-.125	-.103
Gastronomical	-.231*	-.226*	-.225*
Behavioral	-.115	-.108	-.093

*$p < .05$

**$p < .01$

Hypothesis 6 (a) stated that there would be a significant positive correlation between the frequency scores of automatic thoughts as measured by the Automatic Thoughts Questionnaire--Revised and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. A Pearson product-moment correlation coefficient was conducted on the total and subscale scores from the ATQ-R and the TSI.

A correlation for the data revealed a significant relationship between automatic thoughts and teacher stress, $r = .583$, $N = 65$, $p < .01$, one tailed. Specifically, a correlation for the data revealed a significant positive relationship between automatic thoughts and the Emotional Manifestations subscale, $r = .684$, $N = 66$, $p < .01$, one tailed.

Furthermore, a correlation for the data revealed a significant relationship between automatic thoughts and Fatigue Manifestations, $r = .404$, $N = 65$, $p < .01$, one tailed. The correlation for the data revealed a significant relationship between automatic thoughts and Behavioral Manifestations, $r = .369$, $N = 65$, $p < .01$, one tailed. Moreover, a correlation for the data revealed a significant relationship between automatic thoughts and Cardiovascular Manifestations, $r = .331$, $N = 65$, $p < .01$, one tailed.

However, a correlation for the data did not reveal a significant relationship between automatic thoughts and Professional Distress, $r = .187$, $N = 65$, $p < .05$, Gastronomical Manifestations $r = .176$, $N = 65$, $p < .05$, and Time Management $r = .234$, $N = 65$, $p < .05$, as shown in Table 15.

Table 15

Pearson Correlation: Teacher Stress Inventory/Subscales and Automatic Thoughts Questionnaire–Revised

	Automatic Thoughts
TS	.583**
Causes of Stress	
Time Management	.234
Work-related Stress	.274*
Professional Distress	.187
Discipline/Motivation	.316**
Professional Investment	.326**
Manifestations of Stress	
Emotional	.684**
Fatigue	.404**
Cardiovascular	.331**
Gastronomical	.176
Behavioral	.369**

*$p < .05$

** $p < .01$

Hypothesis 6 (b) stated that there would be a significant inverse correlation between the balanced states of mind ratio and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. A point-biserial correlation coefficient was conducted on the total and subscale scores of the TSI and the BSOM ratios.

A correlation for the data revealed a significant inverse relationship between the BSOM ratio and teacher stress, $r = -.573$, $N = 65$, $p < .01$, one tailed.

Conversely, the point biserial correlation revealed a significant relationship between Successful Coping Dialogue (SCD) and teacher stress (TS), $r = .290$, $N = 65$, $p < .01$, one tailed, and between teacher stress and the Failed Coping Dialogue (FCD), $r = .323$, $N = 65$, $p < .01$, one tailed. Table 16 reveals the TSI and BSOM correlations.

A correlation for the data revealed a significant inverse relationship between the BSOM ratio and Emotional Manifestations, $r = -.695$, $N = 65$, $p < .01$, one tailed. Likewise, a significant inverse relationship existed between the BSOM ratio and Work-Related Stress, $r = -.315$, $N = 65$, $p < .01$, one tailed. In addition, a significant inverse relationship was shown between the BSOM ratio and Fatigue Manifestations, $r = -.387$, $N = 65$, $p < .01$, one tailed. However, a correlation for the data failed to reveal a significant relationship between the BSOM ratio and Gastronomical Manifestations, $r = -.177$, $N = 65$, $p < .05$, one tailed.

On the other hand, a correlation for the data did reveal a significant relationship between the Successful Coping Dialogue (SCD) and teacher stress, $r = .290$, $N = 65$, $p < .01$, one tailed. Likewise, a correlation for the data showed a significant relationship between the Failed Coping Dialogue (FCD) and teacher stress. More specifically, the correlation for the data revealed a significant relationship between the FCD and Emotional Manifestations, $r = .424$, $N = 65$, $p < .01$, one tailed.

A correlation for the data revealed a significant relationship between the Conflicted Dialogue (CD) and Emotional Manifestations, $r = .340$, $N = 65$, $p < .01$, one tailed. However, an inverse relationship existed between Positive Dialogue (PD) and Emotional Manifestations, $r = -.640$, $N = 65$, $p < .01$, one tailed.

Finally, a correlation for the data failed to reveal a significant relationship between the Conflicted Dialogue (CD) and teacher stress, $r = .177$, $N = 65$, $p < .05$, one tailed, as shown in Table 16.

Table 16

Correlations for Balanced States of Mind Ratios and Teacher Stress Inventory/Subscales

	SOM	PM	PD	SCD	CD	FCD
TSI total score	-.573**	-.081	-.511**	.290**	.177	.323**
Cause of Stress						
Time Management	-.232*	.097	-.302**	.250*	-.023	.134
Work-Related Stress	-.315**	.033	-.250*	.137	.045	.171
Professional Distress	-.165	-.099	-.162	.156	.067	.031
Discipline/Motivation	-.286**	-.109	-.306**	.306**	.051	.087
Professional Investment	-.330**	-.197	-.292**	.268*	.194	-.007
Manifestations of Stress						
Emotional	-.695**	-.026	-.640**	.223*	.340**	.424**
Fatigue	-.387**	-.016	-.394**	.247*	.072	.261*
Cardiovascular	-.319**	-.048	-.239*	.038*	.198	.174
Gastronomical	-.177	.021	-.106	.012	-.025	.197
Behavioral	-.359**	.084	-.381**	.219*	.034	.262*

* $p < .05$

** $p < .01$

Additional Analyses

A multivariate analysis of variance was conducted using school context, that is, rural versus urban, as the independent variable and the total scores from the Collective Teacher Beliefs Scale, Automatic Thoughts Questionnaire--Revised, and the Teacher Stress Inventory as dependent variables. All three dependent variables correlated as required by MANOVA assumptions. In addition, Box's M revealed that the observed covariance matrices of the dependent variables are equal across groups (Box's M = 7.202, $p = .34$). MANOVA revealed that there were no significant differences between rural versus urban teachers on any of these measures (Wilks' lambda = .958, $F = .898$, $df = 3, 61$, $p = .45$).

In addition, an independent samples t test with school context as the independent variable and balanced states of mind ratio as the dependent variable was conducted. As presented in Table 17, there is no significant difference between rural and urban elementary school teachers on Balanced States of Mind Ratio, ($t = 1.44$, $df = 56$, $p = .16$).

Table 17

t Test for Equality of Means for Balanced States of Mind and School Context

		t	*df*	Sig.*	*M* Difference
BSOM	Equal variances assumed	1.464	64.00	.148	.14747
	Equal variances not assumed	1.441	56.101	.155	.14747

*Two tailed.

CHAPTER 4

Discussion

This study examined the relationships between teacher self-efficacy, collective teacher efficacy, automatic thoughts, balanced states of mind ratios, and teacher stress in elementary school teachers. Scores from the Teacher Beliefs Scale, Collective Teacher Beliefs Scale, Automatic Thoughts Questionnaire--Revised, the calculated BSOM ratio, and the Teacher Stress Inventory provided the data for the study.

Hypothesis 1 stated there would be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale in elementary school teachers. The results indicate a positive relationship between teacher self-efficacy and collective teacher efficacy. This positive relationship suggested that there was a direct relationship between teacher self-efficacy and collective teacher efficacy. For example, in the study by Goddard and Goddard (2001), the relationship between teacher self-efficacy and student achievement appears to be indirect, with teacher self-efficacy influencing many teacher behaviors that, in turn, affect student achievement. A direct relationship here implies that collective teacher efficacy affects teachers' perceptions of their own efficacy, as supported by Goddard and Goddard (2001).

As collective teacher efficacy goes, so goes teacher self-efficacy (Goddard & Goddard, 2001). Goddard and Goddard (2001) suggest that when a teacher low in self-efficacy joins a faculty high in collective teacher efficacy, that teacher's self-efficacy is

more likely to increase. Conversely, the same is not true for the reverse; a teacher high in self-efficacy is not going to have much of an effect on a faculty low in collective teacher efficacy.

Moreover, Goddard and Goddard (2001) found that over and above school contextual factors, socioeconomic status, and prior student achievement, collective teacher efficacy was the only significant predictor of teacher self-efficacy differences among schools. That is to suggest the collective teacher efficacy of a school explain variations between schools in teacher self-efficacy (Goddard & Goddard, 2001).

It is not surprising that a positive relationship exists between teacher self-efficacy and collective teacher efficacy beliefs. The significance of the relationship is supported by Bandura's social cognitive theory in that social influence shapes self-efficacy; teachers "are not social isolates immune to the influence of those around them" (1997, p. 469).

In addition, the results are consistent with research conducted by Kurz and Knight (2003) among high school teachers which found a moderate yet positive relationship between teacher self-efficacy and collective teacher efficacy. Other studies have shown a consistent, albeit modest, relation between self-efficacy and collective efficacy (Jex & Bliese, 1999; Jex & Gudanowski, 1992). Moreover, interest in research on collective teacher efficacy has been increasing (Kurz & Knight, 2003). Wagner (2006) considers collective teacher efficacy as an integral contributor to school climate and culture. These results help show the importance of considering collective teacher efficacy a property of the school.

Hypothesis 2 (a) stated that there would be a significant inverse correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and the frequency scores of automatic thoughts obtained on the Automatic Thoughts Questionnaire--Revised in elementary school teachers. The results indicate that a negative relationship exists between teacher self-efficacy and automatic thoughts. That is, as teacher self-efficacy scores increase, the frequency of negative automatic thoughts decreases. Olioff et al. (1989) demonstrated in their study the association between self-efficacy and negative automatic thoughts in predicting dysphoria.

The results are consistent with research conducted by Ozer and Bandura (1990) who found that (cognitive control) self-efficacy diminished ruminative negative thoughts and anxiety arousal. In another study of cognitive control, Kent and Gibbons (1987) found a relationship between self-efficacy, the number of negative thoughts, and the level of anxiety in dental patients. As mentioned before, these results are similarly consistent with cross-sectional research conducted by Olioff et al. (1989), who found that both negative automatic thoughts and (low) self-efficacy predicted mild depressive symptoms in undergraduates.

It is tempting to say that teacher self-efficacy affects automatic thoughts, an often-replicated mistake in correlational studies. However, the correlational statistic can only show the strength and direction of the relationship between two variables and that strength and direction is quite clear, as this study has shown. Along with prior research, the results can only go as far as saying a relationship exists between strong self-efficacy

beliefs and positive automatic thoughts; likewise, a strong relationship exists between low self-efficacy beliefs and negative automatic thoughts.

Hypothesis 2 (b) stated that there would be a significant positive correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers. The results indicate that a positive correlation exists between teacher self-efficacy and the balanced states of mind ratio ($M = .78$), especially within the Positive Dialogue range (.67 to .90).

Stated simply, teacher self-efficacy beliefs are associated with a positive ratio of positive and negative self-statements among elementary teachers, as indicated by the BSOM model, as well as subscale scores in the areas of instructional strategies and student engagement. However, no ratio of positive or negative self-statements appeared to have any significant affinity with classroom management efficacy.

The fact that classroom management efficacy did not correlate significantly positively or negatively with BSOM ratios seems to be due to the small sample size.

On the other hand, the fact that teacher self-efficacy does not even show a significant negative relationship to negative ratios within the Conflicted and Successful Coping Dialogue ranges suggests this sample of elementary teachers' efficacy beliefs might be robust enough to mitigate negative thinking, at least at this point in time. Future studies should explore this relationship with a larger sample.

With the exception of the Davison et al. (1991) study, no studies existed in the literature that specifically explored the relationship between teacher self-efficacy and the states of mind model. Davison et al. (1991) support this hypothesis inasmuch that self-

efficacy mitigates the impact of anxiety on public speaking. Bandura perceives anxiety as stimulated by negative and intrusive thoughts (1988, 1997), which is also supported by Kent and Gibbons (1987).

In addition, the results are supported theoretically inasmuch that a general positive relationship exists between self-efficacy and adaptive functioning (Bandura, 1997; Chwalisz et al. 1992; O'Leary, 1985). Bandura put it succinctly, "When people have a strong sense of efficacy to control their own thinking, they are less burdened by negative thoughts" (1997, p. 149).

Hypothesis 3 (a) stated that there would be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the frequency scores of automatic thoughts obtained on the Automatic Thoughts Questionnaire--Revised among elementary school teachers. The results indicate that a negative correlation exists between collective teacher efficacy and automatic thoughts. That is, as collective teacher efficacy scores increased, the frequency of negative automatic thoughts decreased.

Goddard, Hoy, and Hoy, (2000) suggest that when collective efficacy beliefs are high, teachers believe then can overcome negative influences. Collective teacher efficacy shapes the normative environment of a school (2000). It is a durable construct that is not easily changed (2000). It refers to the perceptions of teachers that are susceptible to positive and negative cognitions. The morale of an organization has to do with the cognitive activity of the group's members. Negative thinking would be incongruent with highly motivated individuals who obtain goals and objectives (Bandura, 1997). Efficacy

beliefs are based on efficacy shaping information that is biased by one's schema or core beliefs (Gist & Mitchell, 1992). Negative thinking, self-doubt, and intrusive thoughts can undermine efficacy beliefs and thereby inhibit behavior (Bandura, 1997).

There was no significant relationship between the Student Discipline subscale and automatic thoughts. Again, this may be due to small sample size or to the fact that collective efficacy is a construct not easily shaped by teachers' negative thoughts. Future might consider examining factors that influence the relationship between collective teacher efficacy and automatic thoughts.

Hypothesis 3 (b) stated that there would be a significant positive correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and the balanced states of mind ratio in elementary school teachers. The results indicate that the relationship between collective teacher efficacy and the BSOM ratio is not significant. However, the results show that a negative relationship exists between collective teacher efficacy and the ratio within the Conflicted Dialogue range.

In addition, the results indicate a positive relationship between the Instructional Strategies subscale and the ratios within the Positive Dialogue range. More interesting is that there is a positive relationship between the Student Discipline subscale and ratios within the Positive Monologue range. Such inconsistency is probably indicative of sensitivity of measure or small sample size.

Moreover, these results are inconsistent with social cognitive theory that supports a positive relationship between efficacy beliefs and positive thinking patterns and between weak efficacy beliefs and negative thinking (Bandura, 1997). Efficacy beliefs

are associated with general adaptive functioning, and the balanced states of mind ratio is a good indicator of adaptive functioning (Friedman, Schwartz, and Haaga, 2002; Schwartz, Reynolds, Thase, Frank, and Fasiczka, 2002).

This presents as an anomaly since teacher self-efficacy strongly correlated with collective teacher efficacy. Again, the fact that the relationship between collective teacher efficacy and the balanced states of mind ratio was not significant may be due to a lack of power ($p = .057$). In addition, it is possible that the results are different because of a procedural bias (Kazdin, 1998) in that the participants took the questionnaires home instead of completing the forms during the faculty meeting.

Hypothesis 4 stated that there would be a significant inverse correlation between teacher self-efficacy scores obtained on the Teacher Beliefs Scale and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. The results indicate that a negative relationship exists between teacher self-efficacy and teacher stress. These results are consistent with research conducted by Chwalisz et al. (1992), Hutchinson (1998), Jex et al. (2001), and Matsue and Onglatco (1992), who found significant relationships between efficacy beliefs and less stress.

The results of this study found an association between teacher self-efficacy and lower stress among elementary teachers, as indicated by the total stress score on the TSI, as well as the stress subscores in the areas of work-related stress, student discipline and motivation, and professional investment. In addition, this study found a relationship between teacher self-efficacy and emotional, fatigue, and gastronomical manifestations of stress.

The results reveal a negative relationship between teacher self-efficacy and stress subscores in the areas of discipline and motivation, as well in emotional and fatigue manifestations of stress. Likewise, the results show a negative relationship between work-related stressors, professional investment, professional distress, gastronomical, cardiovascular, and behavioral manifestations of stress, and at least one of the teacher self-efficacy subscales. Conversely, there was no significant relationship between teacher self-efficacy and stress due to time management. This may suggest that the elementary teachers in this study did not perceive time management as a salient contributor to their perceived levels of stress.

Hypothesis 5 stated that there would be a significant inverse correlation between collective teacher efficacy scores obtained on the Collective Teacher Beliefs Scale and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. The results indicate a negative relationship exists between collective teacher efficacy total score and its subscales and teacher stress total score, as well as subscales in the areas of discipline and motivation, professional investment, and gastronomical manifestations of stress. These results are consistent with research conducted by Jex and Bliese (1999), which found efficacy beliefs associated with less stress. In addition, research conducted by Goddard & Goddard (2001) suggested stressful events might affect teachers' low collective efficacy beliefs.

Work-related Stressors, Emotional Manifestations, and Fatigue Manifestations subscales reveal that a negative relationship exists with at least one of the collective teacher efficacy scales.

There was no significant relationship between the Time Management, Professional Distress, Cardiovascular Manifestations, and Behavioral Manifestations subscales and the collective teacher efficacy subscales. This may suggest that the correlation failed to show a significant relationship because of small sample size.

Hypothesis 6 (a) stated that there would be a significant positive correlation between the frequency scores of automatic thoughts as measured by the Automatic Thoughts Questionnaire--Revised and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. The results indicate that a positive relationship exists between the frequency of negative automatic thoughts and teacher stress. These results are consistent with research conducted by Bruch (1997), Calvete and Connor-Smith (2005), Goodhart (1985), and Lightsey (1997). In these studies, negative automatic thoughts were more salient in high stress than positive automatic thoughts. In addition, the results of this study did not reveal a significant relationship between negative automatic thoughts and professional distress and gastronomical manifestations. This may be due to the small sample size with low power ($p = .066$).

Hypothesis 6 (b) stated that there would be a significant inverse correlation between the balanced states of mind ratio and teacher stress scores obtained on the Teacher Stress Inventory in elementary school teachers. The results indicated that Balanced States of Mind ratios correlated inversely with Teacher Stress, especially with Positive Dialogue, as was expected. In addition, the results reveal a significant positive relationship between the Successful Coping Dialogue, Conflicted Dialogue, and Failed Coping Dialogue and teacher stress. Thus, conflicted thoughts or negative thinking

predicts stress and psychological maladaptive functioning, according to prior research (Bruch, 1997; Kendall, Howard, & Hays, 1989; Lightsey, 1994a, 1994b).

The results of the teacher stress subscales reveal a significant relationship between teacher's use of time management, discipline and motivation, professional investment, manifestations of fatigue, behavioral manifestations and successful coping. The study's results also revealed a significant correlation between fatigue and failed coping as well as successful coping. Not surprisingly, results showed a significant correlation between emotional manifestations of stress and successful coping, conflicted dialogue, and failed coping.

These results are consistent with research conducted by Bruch (1997), Kendall, Howard, and Hays (1989), Michelson, Schwartz, and Marchione (1991), and Ronan and Kendall (1997). These studies lend support that a relationship exists between negative self-statement ratios and psychological distress. However, the results did not find a significant correlation between professional distress and gastronomical manifestations of stress and the BSOM. Thus, more participants may have produced significant relationships. A replication of this study should be implemented using a larger sample of teachers.

Consequently, these results indicate that the elementary teachers that participated in completing the questionnaires manifested a direct relationship between their teacher self-efficacy beliefs and collective teacher efficacy beliefs ($p < .01$). There is a negative relationship between their teacher self-efficacy beliefs and their negative automatic

thoughts ($p < .05$). In addition, the results show a positive relationship between their teacher self-efficacy beliefs and BSOM ratio ($p < .05$).

The results of this study revealed an inverse relationship between teachers' collective efficacy beliefs and negative automatic thoughts ($p < .05$) as well as an inverse relationship between their teachers' self-efficacy beliefs and stress ($p < .01$). Moreover, the results indicate a negative relationship between their collective teacher beliefs and perceived stress ($p < .01$). Conversely, the results reveal a positive relationship between their automatic thoughts and perceived stress ($p < .01$). Nevertheless, the results indicate a negative relationship between their BSOM ratio and teacher stress ($p < .01$). However, results did not reveal that a significant relationship existed between collective teacher efficacy beliefs and positive/negative thoughts ratios.

The research study has contributed to the body of literature by furthering the research on the interrelated cognitive processes involved in stress and stress-related pathology. Previous studies have included participants with related cognitive variables and related psychological dysfunction.

Olioff et al. (1989) found a connection between self-efficacy beliefs and automatic thoughts in predicting dysphoria in students. Goddard and Goddard (2001) found a powerful relationship between teacher self-efficacy beliefs and collective teacher efficacy beliefs, where the latter predicted the former in an urban school. Davison et al. (1991) were the first to incorporate the States of Mind model with self-efficacy and related it to anxious thoughts in simulated public speaking situations.

Goodhart (1985) discovered that though positive thoughts may deter stressful symptoms in the immediate present, their salience dissipates over time. In addition, Ronan and Kendall (1997) learned that the negative has more salience than the presence of positive thoughts over psychological maladjustment. The current research study is the first to take a cross-sectional glance at the interrelationships between efficacy beliefs, automatic self-statements, and perceived stress. The results make a unique contribution to the research because the study expected to stimulate further exploration into the interrelationships between beliefs, thoughts, and perceptions, specifically in the formation and maintenance of efficacy beliefs under stressful conditions.

In summary, this study examined the relationships between teacher self-efficacy, collective teacher efficacy, automatic thoughts, balanced states of mind ratios, and teacher stress in elementary school teachers. The correlation revealed that the most positive relationships were manifested between teacher self-efficacy beliefs and collective efficacy beliefs and that both self-efficacy and collective teacher efficacy are associated with positive thinking when the ratio of positive to negative thoughts is .78 or greater. Collective teacher efficacy beliefs seem to have the most robust impact on student achievement, school climate, faculty morale, and the organization's ability to mange stress. Whenever the school climate is positive, researchers can assume that collective teacher efficacy beliefs are a salient factor.

Additional Analyses

The sample included two evenly split school contexts, rural and urban. The percentage of students receiving state subsidized meals at school determined school context. There were different racial compositions and different results on the previous year's AYP assessments. It was tempting to run statistics and tempting to predict there would be mean differences on the measures of Teacher Self-Efficacy, Collective Teacher Efficacy, and Teacher Stress. The fact is surprising that no differences were found between groups on these measures considering previous research.

These findings challenge prevailing views (Bandura, 1993; Goddard, LoGerfo, & Hoy, 2004) that significant relationships exist between prior student achievement, socioeconomic status, and collective teacher efficacy. For example, Goddard and Skrla (2006) found that past student achievement, operationalized as student reading proficiency, was positively and significantly related to teachers' collective efficacy beliefs. In addition, Goddard and Skrla found that socioeconomic status and racial composition were unrelated to teachers' collective efficacy beliefs. Similarly, Moore and Waltman's study (2007) challenged previous research that found teachers in schools with lower achievement had more pressure than teachers in schools with higher achievement. They suggest that achievement level of the students is unrelated to teacher stress.

Most recently, Moore and Waltman (2007) suggested that school climate, not school context factors, explain differences between schools on efficacy beliefs. In contrast to school contextual factors, that is, AYP, socioeconomic status, and racial composition, Moore and Waltman (2007) found a strong correlation between teacher

pressure and factors associated with school climate, such as low morale and test-centered focus. Moore and Waltman (2007) found school context variables were unrelated to teachers feeling a lot of pressure from No Child Left Behind mandates. Although Moore and Waltman did not examine teachers' efficacy beliefs, their results, along with previous research on school context, imply that efficacy beliefs are associated more with school climate than they are with school context. Thus, the fact that results did not show significant mean differences between measures among rural and urban elementary teachers suggests these results are supported by the most recent research on school climate.

Therefore, there is a need for additional studies to determine the directionality of these relationships, if such directionality exists. Further studies need to develop a way other than self-reports to measure the relationship between teachers' current cognitive activity, whether positive and negative, and their efficacy beliefs. Future research could also address the relationship between school context factors and school climate factors, as these are related to teacher efficacy beliefs.

Limitations

The research is restricted to the perceptions of elementary school teachers of their individual perceived capabilities, their perceived capabilities of the faculty, their personal assessment of their self-statements, and their perceived levels of stress.

Several limitations need to be acknowledged in this study. First, a major limitation of the current study with elementary school teachers was the reliance on self-

report measures alone. According to Kazdin (1998), social desirability factors or biases on the part of the participants influence self-report instruments. Self-report measures depend on the willingness of participants to take part, to respond honestly and accurately, and to complete each measure in a timely manner. Glass and Arnkoff (1997) suggest that participants may admit to using a certain self-statement because of its familiarity or because it is socially desirable to do so. In fact, if social desirability is involved, it might have acted as a confounding variable, thereby artificially increasing BSOM ratios. Although the results are inconclusive, the anonymous administration of the instruments makes it less likely. A desire to look good to the administrators and to the experimenter influences participants' responses, according to Kazdin (1998).

Second, another limitation is the cross-sectional nature of the study. To be certain of the causal direction of these relationships, one would have to examine changes in these constructs over time. Using correlational analyses limits the interpretation of the results to directionality and strength (Kazdin, 1998). The correlational nature of the design does not allow for causal assumptions. Structured equation modeling or stepwise multiple regression have been demonstrated in earlier studies to produce more veridical and significant results.

Third, there is a limitation in using teacher efficacy scales because they may not actually measure teacher efficacy (Wheatley, 2005). According to Wheatley, teacher efficacy scales give ambiguous results because teacher efficacy is a conceptually elusive construct, difficult to assess with certainty, where teachers' responses can have so many different meanings. In addition, Wheatley argues, "teacher efficacy is easily confused

with actual teaching effectiveness" (2005, p. 748). Moreover, he states that efficacy beliefs may underestimate, overestimate, or accurately reflect actual teaching effectiveness.

In addition, the fact that stressful life events and BSOM are typically dependent may have limited the results of this study (Monroe & Simons, 1991). In other words, a negative dialogue, that is, an asymmetrical balance of negative to positive automatic thoughts, may contribute to a person's interpreting certain stressors related only by time as more stressful. Thus, a measurement bias may have affected the results.

Fourth, participants had up to one week to complete the questionnaires on their own time and to return the completed questionnaire into a box in their administrator's office. During this time, participants may have been influenced by diverse experiences and situations unrelated to the school environment. Hence, a procedural bias may have affected the results.

Fifth, because the teachers volunteered to complete the questionnaires and volunteers tend to have their own profile (Kazdin, 1998), an incorporated sampling bias or self-selection bias existed.

Furthermore, the study included a homogeneous group because those who participated were elementary teachers, which also may have contributed to a sampling bias. An additional limitation of the study was the small number of participants ($N = 66$). Finally, nearly all of the participants were White ($n = 65$), which limits the generalizability of the results. These findings are significant but in light of the limitations the results should be interpreted with caution.

Future Research

Many previous studies have explored the interplay between environmental, behavioral, and personal factors in social cognitive theory. Little has been done to research the interrelationships of various cognitive processes. In order to understand further the reciprocal nature between efficacy beliefs and self-statements, future research needs to address which cognition is more salient in accomplishing goals in stressful situations. Obviously, correlational analysis will only confirm that a significant relationship exists, how strong it is, and in what direction.

Structural equation modeling, regression and path analysis may answer the questions about prediction, causality, mediation, or moderation with variables. Prior studies have used these statistical analyses with self-efficacy and stress and automatic thoughts and stress; however, what remains is to use these statistics with self-efficacy and automatic thoughts' frequencies and ratios.

This study should be replicated using a larger sample size to further the understanding and significance of these cognitive relationships in the context of teacher stress. In addition, repeating this study with measurements taken at different times throughout the school year would provide a greater depth of understanding of these variables and their relationship to teacher stress at different times. Furthermore, following participants over time in longitudinal studies will reveal more about the malleability and durability of one's beliefs and cognitions. Moreover, research would benefit from studies that include measures other than self-report instruments to provide better credibility to the results. Information from future studies can enhance teacher in-services with reinforcing

skills in stress management, cognitive restructuring, and positive emotion refocusing techniques.

Finally, studies that explore the determinants of collective teacher efficacy beliefs would contribute to the field of education because the literature posits this to be an important salient factor in accomplishing student achievement more so than individual teacher efficacy beliefs. All students are to be proficient in reading and math and all schools are to have met adequate yearly progress goals by 2014, the deadline established by No Child Left Behind. Finally, future studies should explore the influence of positive and negative self-statements on perceptions of stress and the shaping of efficacy beliefs. Understanding these cognitive relationships between efficacy beliefs and positive and negative thinking can contribute to a better understanding of how to help teachers manage stress.

REFERENCES

Abel, M. H., & Sewell, J. (1999). Stress and burnout in rural and urban secondary school teachers. *Journal of Educational Research, 92*(5), 287-293.

Abrams, L., Pedulla, J., & Madaus, G. (2003). Views from the classroom: Teachers' opinions of statewide testing programs (1). *Theory into Practice, 42*(1), 18-29.

Allinder, R. M. (1994). The relationship between efficacy and the instructional practices of special education teachers and consultants. *Teacher Education and Special Education, 17*(2), 86-95. Retrieved May 5, 2006, from ERIC (Abstract No. EJ493054).

American Institute of Stress. (n.d.). Job Stress. In *The American Institute of Stress.* Retrieved March 25, 2006, from http://www.stress.org/job.htm.

Amor, D., Conroy-Oseguera, P., Cox, M., King, N., McDonnell, L., Pascal, A., Pauly, E., Zellman, G. L. (1976). *Analysis of the school preferred reading programs in selected Los Angeles minority schools.* (Report No. R-2007-LAUSD). Santa Monica, CA: RAND. (ERIC Document Reproduction Service No. 130243).

Amsel, R., & Fichten, C. S. (1998). Recommendations for self-statement inventories: Use of valence, end points, frequency, and relative frequency. *Cognitive Therapy and Research, 22*(3), 255-277.

Anderson, R., Greene, M., & Loewen, P. (1988). Relationships among teachers and students' thinking skills, sense of efficacy, and student achievement. *Alberta Journal of Educational Research, 34*(2), 148-165.

Ashton, P., Buhr, D., & Crocker, L. (1984). Teacher's sense of efficacy: A self- or norm referenced construct? *Florida Journal of Educational Research, 26*(1), 29-41.

Ashton, P. T., & Webb, R. B. (1986). *Making a difference: Teachers' sense of efficacy and student achievement.* New York: Longman.

Bandura, A. (1977a). *Social learning theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1977b). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Bulletin, 84,* 191-215.

Bandura, A. (1978). The self-system in reciprocal determinism. *American Psychologist, 33(4)* 344-358.

Bandura, A. (1982, February). Self-efficacy mechanism in human agency. *American Psychologist, 37*(2), 122-147.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice-Hall.

Bandura, A. (1988). Self-efficacy conceptions of anxiety. *Anxiety Research, 1,* 77-98.

Bandura, A. (1989). Human agency in social cognitive theory. *American Psychologist, 44*(9), 1175-1184.

Bandura, A. (1993). Perceived self-efficacy in cognitive development and functioning. *Educational Psychologist, 28*(2), 117-148.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: W. H. Freeman.

Bandura, A. (2000). Exercise of human agency through collective efficacy. *Current Directions in Psychological Science, 9*(3), 75-78.

Bandura, A. (2001). Social cognitive theory: An agentive perspective. *Annual Review of Psychology, 52,* 1-26.

Bandura, A. (2004). Swimming against the mainstream: The early years from chilly tributary to transformative mainstream. *Behaviour Research and Therapy, 42,* 613-630.

Bandura, A. (n.d.). *Teacher self-efficacy scale.* Retrieved November 10, 2005, from http://www.coe.ohio-state.edu/ahoy/researchinstruments.htm#BAn

Barfield, V., & Burlingame, M. (1974). The pupil control ideology of teachers in selected schools. *Journal of Experimental Education, 42*(4), 6-11.

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects.* New York: Harper & Row.

Beck, A. T. (1976). *Cognitive therapy and the emotional disorders.* New York: International Universities Press.

Beck, A. T. (1987). Cognitive models of depression. *Journal of Cognitive Psychotherapy: An International Quarterly, 1,* 5-37.

Beck, A. T. (1991). Cognitive therapy: A 30-year retrospective. *American Psychologist, 46,* 368-375.

Beck, A. T., Shaw, B. J., & Emery, G. (1979). *Cognitive therapy of depression.* New York: Guilford.

Benjafield, J., & Adams-Webber, J. (1976). The golden section hypothesis. *British Journal of Psychology, 67*(1), 11-15.

Berman, P., McLaughlin, M., Bass, G., Pauly, E., & Zellman, G. (1977). *Federal programs supporting educational change: Vol. VII Factors affecting implementation and continuation* (Report No.R-1589/7-HEW). Santa Monica, CA: RAND. (ERIC Document Reproduction Service No. 140 432).

Betoret, F. D. (2006). Stressors, self-efficacy, coping resources, and burnout among secondary school teachers in Spain. *Educational Psychology, 26*(4), 519- 539.

Boaler, J. (2003). When learning no longer matters: Standardized testing and the creation of inequality. *Phi Delta Kappan, 84*(7), 502-506.

Brissie, J. S., Hoover-Dempsey, K. V., & Bassler, O. C. (1988). Individual, situational contributors to teacher burnout. *Journal of Educational Research, 82*(2), 106-112.

Brouwers, A., & Tomic, W. (2000). A longitudinal study of teacher burnout and perceived self-efficacy in classroom management. *Teaching and Teacher Education, 16,* 239-253.

Bruch, M. A. (1997). Positive thoughts or cognitive balance as a moderator of the negative life events-dysphoria relationship: A reexamination. *Cognitive Therapy and Research, 21*(1), 25-38.

Bruch, M. A., Hamer, R. J., & Kaflowitz-Linder, N. G. (1992). Cognitive balance and assertiveness: Testing the construct validity of the states of mind categories. *Cognitive Therapy and Research, 16,* 653-667.

Burgess, E., & Haaga, D. (1994). The Positive Automatic Thoughts Questionnaire-Revised: Equivalent measures of positive thinking? *Cognitive Therapy and Research, 18*(1), 15-24.

Calvete, E., & Connor-Smith, J. K. (2005). Automatic thoughts and psychological symptoms: A cross-cultural comparison of American and Spanish students. *Cognitive Therapy and Research, 29*(2), 201-217.

Caprara, G. V., Barbaranelli, C., Borgogni, L., & Steca, P. (2003). Efficacy beliefs as determinants of teachers' job satisfaction. *Journal of Educational Psychology, 95*(4), 821-832.

Casey, L. M., Newcombe, P. A., & Oei, T. P. S. (2005). Cognitive mediation of panic severity: The role of catastrophic misinterpretation of bodily sensations and panic self-efficacy. *Cognitive Therapy and Research, 29*(2), 187-200.

Chan, D. W. (1998). Stress, coping strategies and psychological distress among secondary school teachers in Hong Kong. *American Educational Research Journal, 35,* 145-163.

Chan, D. W. (2002). Stress, self-efficacy, social support, and psychological distress among prospective Chinese teachers in Hong Kong. *Educational Psychology, 22*(5), 557-567.

Chwalisz, K., Altmaier, E. M., & Russell, D. W. (1992). Causal attributions, self-efficacy cognitions, and coping with stress. *Journal of Social and Clinical Psychology, 11*(4), 377-400.

Coladarci, T. (1992). Teachers' sense of efficacy and commitment to teaching. *Journal of Experimental Education, 60*(4), 323-337.

Compliance With the No Child Left Behind Act of 2001. (2003). In *The Pennsylvania Code* (chap. 403). Retrieved March 14, 2006, from http://www.pacode.com/secure/data/022/chapter403/chap403toc.html.

Crichton, N. (2000). Information point: Wilks' lambda. *Journal of Clinical Nursing, 9*(3), 381.

Czerniak, C. M., & Schriver, M. L. (1994). An examination of preservice science teachers' beliefs and behaviors as related to self-efficacy. *Journal of Science Teacher Education, 5*(3), 77-86. Retrieved May 17, 2006, from ERIC (Abstract No. EJ504042).

Davison, G. C., Haaga, D. A. F., Rosenbaum, J., Dolezal, S. L., & Weinstein, K. A. (1991). Assessment of self-efficacy in articulated thoughts: "States of mind" analysis and association with speech-anxious behavior. *Journal of Cognitive Psychotherapy: An International Quarterly, 5*(2), 83-90.

Dedovic, K., Renwick, R., Mahani, N. K., Engert, V., Lupien, S. J., & Pruessner, J. C. (2005). The Montreal imaging stress task: Using functional imaging to investigate the effects of perceiving and processing psychosocial stress in the human brain. *Journal of Psychiatry and Neuroscience, 30*(5), 319-325.

Dember, W. N. (1974). Motivation and the cognitive revolution. *American Psychologist,* 161-168.

Derogatis, L. R. (1987). The Derogatis stress profile (DSP): Quantification of psychological stress. *Advances in Psychosomatic Medicine, 17* 30-54.

Diclemente, C. C. (1981). Self-efficacy and smoking cessation maintenance: A preliminary report. *Cognitive Therapy and Research, 5*(2), 175-187.

Diclemente, C. C. (1986). Self-efficacy and the addictive behaviors. *Journal of Social and Clinical Psychology, 4*(3), 302-315.

Dush, D. M., Hirt, M. L., & Schroeder, H. (1983). Self-statement modification with adults: A meta-analysis. *Psychological Bulletin, 94*(3), 408-422.

Eastman, C., & Marzillier, J. S. (1984). Theoretical and methodological difficulties in Bandura's self-efficacy theory. *Cognitive Therapy and Research, 8*(3), 213-229.

Ellis, A. (1962). *Reason and emotion in psychotherapy.* New York: Lyle Stuart.

Evers, W. J. B., Brouwers, A. & Tomic, W. (2002). Burnout and self-efficacy: A study on teachers' beliefs when implementing an innovative education system in the Netherlands. *British Journal of Educational Psychology, 72* 227-243.

Fichten, C. S., Amsel, R., Robillard, K., & Tagalakis, V. (1991). Thoughts about encounters between nondisabled and disabled peers: Situational constraints, states-of-mind, and valenced thought categories. *Cognitive Therapy and Research, 15*, 345-369.

Fimian, M. J. (1984). The development of an instrument to measure occupational stress in teachers: The teacher stress inventory. *British Psychological Society, 57*, 277-293.

Fimian, M. J. (1987, January). Teacher stress: An expert appraisal. *Psychology in the Schools, 24* 5-14.

Fimian, M. J. (1988). *Teacher Stress Inventory.* Brandon, VT: Clinical Psychology Publishing Co., Inc.

Fimian, M. J., & Fastenau, P. S. (1990). The validity and reliability of the Teacher Stress Inventory: A re-analysis of aggregate data. *Journal of Organizational Behavior, 11*, 151-157.

Friedman, E. T., Schwartz, R. M., & Haaga, D. A. F. (2002). Are the very happy too happy? *Journal of Happiness Studies, 3,* 355-372.

Gibson, C. (2001). Me and us: Differential relationships among goal-setting training efficacy and effectiveness at the individual and team level. *Journal of Organizational Behavior, 22,* 789-808.

Gibson, S., & Dembo, M. (1984). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*(4), 569-582.

Gibson, S., & Dembo, M. (2004). Teacher efficacy: A construct validation. *Journal of Educational Psychology, 76*(4), 569-582.

Gist, M. E., & Mitchell, T. R. (1992). Self-efficacy: A theoretical analysis of its determinants and malleability. *Academy of Management Review, 17*(2), 183-211.

Glass, C. R., & Arnkoff, D. B. (1997). Questionnaire methods of cognitive self-statement assessment. *Journal of Consulting and Clinical Psychology, 65*(6), 911-927.

Glickman, C., & Tamashiro, R. (1982). A comparison of first-year, fifth-year, and former teachers on efficacy, ego development, and problem solving. *Psychology in Schools, 19*, 558-562. Abstract retrieved January 11, 2006, from http://www.eric.ed.gov/ERICWebPortal/Home: (Abstract No. EJ270843).

Goddard, R. D. (2001). Collective efficacy: A neglected construct in the study of schools and student achievement. *Journal of Educational Psychology, 93*(3), 467-476.

Goddard, R. D. & Goddard, Y. L. (2001). A multilevel analysis of the relationship between teacher and collective efficacy in urban schools. *Teaching and Teacher Education, 17*, 807-818.

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*(2), 479-507.

Goddard, R. D., Hoy, W. K., & Hoy, A. W. (2004, April). Collective efficacy: Theoretical developments, empirical evidence, and future directions. *Educational Researcher, 33*(3), 3-13. Retrieved January 31, 2007, from http://www.aera.net/uploadedFiles/Journals_and_Publications/Journals/Educational_Researcher/Volume_33_No3/02/02ERv33n3-Goddard

Goddard, R. D., LoGerfo, L., & Hoy, W. K. (2004). High school accountability: The role of collective efficacy. *Educational Policy, 18*(3), 403-425.

Goddard, R. D., & Skrla, L. (2006, April). The influence of school social composition on teachers' collective efficacy beliefs. *Educational Administration Quarterly, 42*(2), 216-235.

Gonder, P. O. & Hymes, D. (1994). *Improving school climate and culture* (AASA Critical Issues' Report No. 27). Arlington, VA: American Association of School Administrators.

Goodhart, D. E. (1985). Some psychological effects associated with positive and negative thinking about stressful event outcomes: Was Pollyanna right? *Journal of Personality and Social Psychology, 48*(1), 216-232.

Granziano, C. (2005). Teacher burnout: How to keep teachers. *Edutopia, 2,* 40-44.

Green-Reese, S., Johnson, D. J., & Campbell, W.A. (1991). Teacher job satisfaction and teacher job stress: School size, age and teaching experience. *Education, 112*(2), 247-252.

Griffith, L. F. (2003). Combining schema-focused cognitive therapy and psychodrama: A model for treating clients with personality disorders. *Journal of Group Psychotherapy, Psychodrama and Sociometry, 55*(4), 128-140.

Guskey, T., & Passaro, P. (1994). Teacher efficacy: A study of construct dimensions. *American Educational Research Journal, 31,* 627-643.

Guskey, T. R. (1981). Measurement of the responsibility teachers assume for academic success and failures in the classroom. *Journal of Teacher Education, 32*(3), 44-51.

Guskey, T. R. (1984). The influence of change in instructional effectiveness upon the affective characteristics of teachers. *American Educational Research Journal, 21,* 245-259.

Haaga, D. A. F., Davison, G. C., McDermut, W., Hillis, S. L., & Twomey, H. B. (1993). States of mind analysis of the articulated thoughts of ex-smokers. *Cognitive Therapy and Research, 5,* 427-439.

Haaga, D. A. F., Dyck, M. J., & Ernst, D. (1991). Empirical status of cognitive theory of depression. *Psychological Bulletin, 110*(2), 215-236.

Hagge, S. L. & Waltman, K. (2007, November). *Teachers' perceptions of NCLB: A multi-year study.* Paper presented at the annual meeting of Iowa Educational research and Evaluation Association, Iowa City, IA. Retrieved April 12, 2008, from http://www.education.uiowa.edu/cea/RecentFindings.htm.

Harris, L. & Associates. (2001). Key elements of quality schools. In *The Metlife Survey of the American Teacher.* Retrieved October 17, 2006, from http://www.metlife.com/Applications/Corporate/WPS/CDA/PageGenerator/0,4132,P2315,00.html: Metropolitan Life.

Hastings, R. P., & Bham, M. (2003). The relationship between student behavior patterns and teacher burnout. *School Psychology International, 24*(1), 115-127.

Henson, R. K. (2001). *Teacher self-efficacy: Substantive implications and measurement dilemmas.* [Teacher Efficacy Research]. Paper presented at Educational Research Exchange, Texas A&M University, Texas. Retrieved June 22, 2005, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/16/f9/b4.pdf.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513-524.

Hollon, S. D., & Kendall, P. C. (1980). Cognitive self-statements in depression: Development of an automatic thoughts questionnaire. *Cognitive Therapy and Research, 4,* 383-395.

Holt, P., Fine, M. J., & Tollefson, N. (1987). Mediating stress: Survival of the hardy. *Psychology in the Schools, 24*, 51-58.

Hoy, A. W., & Murphy, P. K. (2001). Teaching educational psychology to the implicit mind. In B. Torff & R. J. Sternberg (Eds.), *Understanding and teaching the intuitive mind: Student and teacher learning.* Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Hoy, W. K., & Woolfolk, A. E. (1993). Teachers' sense of efficacy and the organizational health of schools. *Elementary School Journal, 93*, 356-372.

Hutchinson, W. (1998). *An investigation of teacher stress and efficacy.* [ERIC]. Retrieved August 4, 2006, from http://eric.ed.gov/ERICWebPortal/Home.portal?_nfpb=true&_pageLabel=RecordDetails&ERICExtSearch_SearchValue_0=ED460105&ERICExtSearch_SearchType_0=eric_accno&objectId=0900000b8006ed9f : ED460105.

Ingram, R. E., & Wisnicki, K. (1988, December). Assessment of positive automatic cognitions. *Journal of Consulting and Clinical Psychology, 56*(6), 898-902.

Jarvis, M. (2002). Teacher stress: A critical review of recent findings and suggestions for future research. *Stress News, 14*(1), 1-7. Retrieved July 4, 2006, from http://www.enhanceeducation.co.nz/?p=44.

Jennett, H. K., Harris, S. L., & Mesibov, G. B. (2003). Commitment to philosophy, teacher efficacy, and burnout among teachers of children with autism. *Journal of Autism and Developmental Disorders, 33*(6), 583-593.

Jex, S. M., & Bliese, P. D. (1999). Efficacy beliefs as a moderator of the impact of work-related stressors: A multilevel study. *Journal of Applied Psychology, 84*(3), 349-361.

Jex, S. M., Bliese, P. D., Buzzell, S., & Primeau, J. (2001). The impact of self-efficacy on stressor-strain relations: Coping style as an explanatory mechanism. *Journal of Applied Psychology, 86*(3), 401-409.

Jex, S. M., & Gudanowski, D. M. (1992). Efficacy beliefs and work stress: A exploratory study. *Journal of Organizational Behavior, 13,* 509-517.

Jimerson, L. (2005). Making it worse: How *No Child Left Behind* magnifies challenges of recruiting and retaining qualified teachers in high poverty rural schools. Paper prepared for the Center on Education Policy, Washington, D.C.

Kavanagh, D. J., & Bower, G. H. (1985). Mood and self-efficacy: Impact of joy and sadness on perceived capabilities. *Cognitive Therapy and Research, 9*(5), 1573-2819.

Kazdin, A. E. (1998). *Research design in clinical psychology* (3rd ed.). Boston: Allyn and Bacon.

Kendall, P. C. (1982). Cognitive processes and procedures in behavior therapy. In C. M. Franks, G. T. Wilson, P. C. Kendall, & K. D. Brownell, *Annual review of behavior therapy* (Vol. 8, pp. 120-155). New York: Guilford Press.

Kendall, P. C. (1983). Methodology and cognitive-behavioral assessment. *Behavioural Psychotherapy, 11,* 285-301.

Kendall, P. C. (1992). Healthy thinking. *Behavior Therapy, 23,* 1-11.

Kendall, P. C., Howard, B. L., & Hays, R. C. (1989). Self-referent speech and psychopathology: The balance of positive and negative thinking. *Cognitive Therapy and Research, 13*(6), 583-598.

Kent, G. (1987). Self-efficacious control over reported physiological, cognitive and behavioral symptoms of dental anxiety. *Behaviour Research and Therapy, 25,* 341-347.

Kent, G., & Gibbons, R. (1987). Self-efficacy and the control of anxious cognitions. *Journal of Behavior Therapy and Experimental Psychiatry, 18,* 33-40.

Keselman, H. J., Rogan, J. C., Mendoza, J. L., & Breen, L. J. (1980). Testing the validity conditions of repeated measures F tests. *Psychological Bulletin, 87*(3), 479-481.

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*(1), 1-11.

Kohn, A. (2005). Unconditional teaching. *Educational Leadership, 63*(1), 20- 24.

Kurz, T. B., & Knight, S. L. (2004). An exploration of the relationship among teacher efficacy, collective teacher efficacy, and goal consensus. *Learning Environments Research, 7,* 111-128.

Kyriacou, C. (2001). Teacher stress: Directions for future research. *Educational Review, 53*(1), 27-35.

Lave, J. (1988). *Cognition in practice: Mind, mathematics, and culture in everyday life.* Cambridge, UK: Cambridge University Press.

Lazarus, R. S. (1984). On the primacy of cognition. *American Psychologist, 39*(2), 124-129.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping.* New York: Springer.

Lee, C. (1992). On cognition and causation in human behavior. *Behavior Therapy and Experimental Psychiatry, 23*(4), 257-268.

Lefebvre, V. A. (1985). The golden section and an algebraic model of ethical cognition. *Journal of Mathematical Psychology, 29,* 289-310.

Leiter, M. P. (1992). Burn-out as a crisis in self-efficacy: Conceptual and practical implications. *Work and Stress, 6*(2), 107-115.

Lennings, C. J. (1994). An evaluation of a generalized self-efficacy scale. *Personality and Individual Differences, 16*(5), 745-750.

Lightsey, O. R. (1994a). Positive automatic cognitions as moderators of the negative life event-dysphoria relationship. *Cognitive Therapy and Research, 18*(4), 353-364.

Lightsey, O. R. (1994b). "Thinking positive" as a stress buffer: The role of positive automatic cognitions in depression and happiness. *Journal of Counseling Psychology, 41*(3), 325-334.

Lightsey, O. R. (1997). Stress buffers and dysphoria: A prospective study. *Journal of Cognitive Psychotherapy: An International Quarterly, 11*(4), 263-277.

Lightsey, O. R., & Christopher, J.C. (1997). Stress buffers and dysphoria in a nonwestern population. *Journal of Counseling and Development, 75,* 451-459.

Little, B. L., & Madigan, R. M. (1997). The relationship between collective efficacy and performance in manufacturing work teams. *Small Group Research, 28*(4), 517-534.

Luszczynska, A., Gutierrez-Dona, B., & Schwarzer, R. (2005). General self-efficacy in various domains of human functioning: Evidence from five countries. *International Journal of Psychology, 40*(2), 80-89.

Mahoney, M. J. (1974). *Cognition and behavioral modification.* Cambridge, MA: Ballinger.

Mahoney, M. J. (1989,). Scientific psychology and radical behaviorism. *American Psychologist, 44*(11), 1372-1377.

Mandel, S. (2006). What new teachers really need? *Educational Leadership, 63*(6), 66-69.

Maslach, C., & Jackson, S. E. (1981). The measure of experienced burnout. *Journal of Occupational Behavior, 2,* 99-113.

Matsue, T., & Onglatco, M. (1992). Career self-efficacy as a moderator of the relation between occupational stress and strain. *Journal of Vocational Behavior, 41*(1), 79-88.

McDermut, W., & Haaga, D. A. F. (1994). Cognitive balance and specificity in anxiety and depression. *Cognitive Therapy and Research, 18,* 333-352.

McGrath, R. E. V., & Burkhart, B. R. (1983). Measuring life stress: A comparison on the predictive validity of different scoring systems for the social readjustment rating scale. *Journal of Clinical Psychology, 39*(4), 573-581.

Mearns, J., & Cain, J. E. (2003). Relationships between teachers' occupational stress and their burnout and distress: Roles of coping and negative mood regulation expectancies. *Anxiety, Stress, and Coping, 16*(1), 71-82.

Meichenbaum, D. (1977). *Cognitive-behavior modification: An integrative approach.* New York: Plenum Press.

Meichenbaum, D. (1996). Stress inoculation training for coping with stressors. *Clinical Psychologist, 49,* 4-7.

Merluzzi, T. V. (1993). Cognitive assessment: Clinical applications of self-assessment. *Journal of Counseling and Development, 71,* 539-545.

Michelson, L. K., Schwartz, R. M., & Marchione, K. E. (1991). States-of-mind model: Cognitive balance and the treatment of agoraphobia-II. *Advances in Behavior Research and Therapy, 13,* 193-213.

Midgley, C., Feldlaufer, H., & Eccles, J. (1989). Change in teacher efficacy and student self- and task-related beliefs in mathematics during the transition to junior high school. *Journal of Educational Psychology, 81,* 247-258.

Miller, G. E., Chen, E., & Zhou, E. S. (2007). If it goes up, it must come down? Chronic stress and the hypothalamic-pituitary-adrenocortical axis in humans. *Psychological Bulletin, 133*(1), 25-45.

Monroe, S. M., & Simons, A. D. (1991). Diathesis-stress theories in the context of life stress research: Implications for the depressive disorders. *Psychological Bulletin, 110*(3), 406-425.

Montgomery, C., & Rupp, A. A. (2005). A meta-analysis for exploring the diverse causes and effects of stress in teachers. *Canadian Journal of Education, 28*(3), 458-580.

Moore, W. P., & Esselman, M. E. (1992, April). *Teacher efficacy, empowerment, and a focused instructional climate: Does student achievement benefit?* Paper presented

at the Annual Conference of the American Educational Research Association, San Francisco. Retrieved December 13, 2006, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/12/df/39.pdf.

Moore, J. & Waltman, K. (2007). *Pressure felt by teachers to increase test scores in reaction to NCLB: An investigation of related factors.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL. Retrieved April 12, 2008, from http://www.education.uiowa.edu/cea/documents/Pressure_AERA_2007_and_IEREA_2006.pdf.

Murphy, L. R., & Schoenborn, T. F. (Eds.). (1987). Stress management in work settings. In *DHHS (NIOSH) Publication No. 87-111.* Retrieved March 22, 2006, from http://www.cdc.gov/niosh/87-111.html.

National Collaborative on Diversity in the Teaching Force. (October, 2004). *Assessment of diversity in America's teaching force.* Washington, DC. Retrieved January 5, 2008, from http://www.nea.org/teacherquality/images/diversityreport.pdf.

National Commission on Excellence in Education. (1983). *A nation at risk: The imperative for educational reform.* Washington DC: Department of Education.

Nespor, J. (1987). The role of beliefs in the practice of teaching. *Journal of Curriculum Studies, 19*(4), 317-328. Abstract retrieved November 8, 2006, from http://www.eric.ed.gov/ERICWebPortal/Home.portal: ERIC (Abstract No.EJ358545).

New Detroit: The Coalition. (2003). *A progress report: School improvement in the Detroit public schools.* East Lansing, Michigan State University.

Nezu, A. M., Ronan, G. F., Meadows, E. A., & McClure, K. S. (Eds.). (2000). *Practitioner's guide to empirically-based measures of depression.* [AABT Clinical Assessment Series]. New York: Kluwer Academic/Plenum Publishers.

Noddings, N. (2005). What does it mean to educate the whole child? *Educational Leadership, 63*(1), 8-13.

Nolle, K. L., Guerino, P., Dinkes, R., & Chandler, K. (2007). Crime, violence, discipline, and safety in U.S. public schools. *Findings from the School Survey on Crime and Safety: 2005-06 National Center for Education Statistics* 2007-361. Retrieved January 5, 2008, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/33/2e/03.pdf.

O'Leary, A. (1985). Self-efficacy and health. *Behavior, Research and Therapy, 23*(4), 437-451.

Olioff, M., Bryson, S. E., & Wadden, N. P. (1989). Predictive relation of automatic thoughts and student efficacy to depressive symptoms in undergraduates. *Canadian Journal of Behavioral Science, 21*(4), 353-363.

Ozer, E. M., & Bandura, A. (1990). Mechanisms governing empowerment effects: A self-efficacy analysis. *Journal of Personality and Social Psychology, 58*(3), 472-486.

Pajares, F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62*(3), 307-332.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*(4), 543-78.

Pajares, F. (2000). Schooling in America: Myths, mixed messages, and good intentions. *Great Teachers Lecture Series.* Paper presented at Cannon Chapel, Emory University, Atlanta. Retrieved March 4, 2005, from http://www.des.emory.edu/mfp/pajaresgtl.html.

Pajares, F. (2002). *Self-efficacy in academic contexts: An outline.* Retrieved January 18, 2006, from http://www.emory.edu/EDUCATION/mfp/efftalk.html.

Parkay, F. W., Greenwood, G., Olejnik, S., & Proller, N. (1988). A study of the relationships among teacher efficacy, locus of control, and stress. *Journal of Research and Development in Education, 21*(4), 13-22.

Parker, J. C. (1995). Stress management. In P. M. Nicassio & T. W. Smith (Eds.), *Managing Chronic Illness: A biopsychosocial perspective* (pp. 285-312). Washington, DC: American Psychological Association.

Peterson, K. D., & Deal, T. E. (1998). How leaders influence the culture of schools. *Educational Leadership, 56*(1), 28-30.

Pianta, R. C. (1999). *Enhancing relationships between children and teachers.* Washington, DC: American Psychological Association.

Pruessner, J. C., Hellhammer, D. H., & Kirschbaum, C. (1999). Low self-esteem, induced failure, and the adrenocortical stress response. *Personality and Individual Differences, 27*(3), 477-489.

Raudenbush, S. W., Rowan, B., & Cheong, Y. F. (1992). Contextual effects on the self-perceived efficacy of high school teachers. *Sociology of Education, 65*(2), 150-167.

Rimm-Kaufman, S. E., & Sawyer, B. E. (2004). Primary-grade teachers' self-efficacy beliefs, attitudes toward teaching, and discipline and teaching practice priorities in relation to the responsive classroom approach. *Elementary School Journal, 104*(4), 321-341.

Ronan, K. R., & Kendall, P. C. (1997). Self-talk in distressed youth: States-of-mind and content specificity. *Journal of Clinical Child Psychology, 26*(4), 330-337.

Rose, J. S., & Medway, F. J. (1981). Measurement of teachers' beliefs in their control over student outcome. *Journal of Educational Research, 74,* 185-190.

Ross, J. A. (1992). Teacher efficacy and the effect of coaching on student achievement. *Canadian Journal of Education, 17*(1), 51-65.

Ross, J. A. (1994). The impact of an inservice to promote cooperative learning on the stability of teacher efficacy. *Teaching and Teacher Education, 10,* 381-394.

Ross, J. A., Cousins, J. B., & Gadalla, T. (1996). Within-teacher predictors of teacher efficacy. *Teaching and Teacher Education, 12*(4), 385-400.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs, 80,* 1-28.

Russell, D. W., Altmaier, E., & Van Velzen, D. (1987). Job-related stress, social support, and burnout among classroom teachers. *Journal of Applied Psychology, 72*(2), 269-274.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277,* 918-924.

Scheier, M. F., & Carver, C. S. (1992). Effects of optimism on psychological and physical well-being: Theoretical overview and empirical update. *Cognitive Therapy and Research, 16,* 201-228.

Scholz, U., Dona, B.G., Sud, S., & Schwarzer, R. (2002). Is general self-efficacy a universal construct? *European Journal of Psychological Assessment, 18*(3), 242-251.

Schwartz, R. M. (1986). The internal dialogue: On the symmetry between positive and negative coping thoughts. *Cognitive Therapy and Research, 10,* 591-605.

Schwartz, R. M. (1997). Consider the simple screw: Cognitive science, quality improvement, and psychotherapy. *Journal of Consulting and Clinical Psychology, 65,* 970-983.

Schwartz, R. M., & Garamoni, G. L. (1989). Cognitive balance and psychopathology: Evaluation of an information processing model of positive and negative states of mind. *Clinical Psychology Review, 9*(2), 271-294.

Schwartz, R. M., Reynolds, C. F. III, Thase, M. E., Frank, E., Fasiczka, A. L., & Haaga, D. A. F. (2002). Optimal and normal affect balance in psychotherapy of major

depression: Evaluation of the balanced states of mind model. *Behavioural and Cognitive Psychotherapy, 30,* 439-450.

Schwarzer, R. (Ed.). (1992). *Self-efficacy: Thought control of action.* Washington, DC: Hemisphere.

Selye, H. (1974). *Stress without distress.* Philadelphia: J.P. Lippincott Co.

Skinner, B. F. (1971). *Beyond freedom and dignity.* New York: Knopf.

Smylie, M. A. (1988). The enhancement function of staff development: Organizational and psychological antecedents to individual teacher change. *American Educational Research Journal, 25,* 1-30.

Soodak, L., & Podell, D. (1996). Teacher efficacy: Toward the understanding of a multi-faceted construct. *Teaching and Teacher Education, 12,* 401-412.

Sunderman, G. (2006). *The unraveling of No Child Left Behind: How negotiated changes transform the law.* Retrieved September 22, 2006, from Harvard University: The Civil Rights Project Web site: http://www.civilrightsproject.harvard.edu/research/articles/NCLB _ Survey _ Report .pdf.

Sunderman, G., Tracey, C., & Orfield, G. (2004, September). *Listening to teachers: Classroom realities and No Child Left Behind.* Retrieved September 22, 2006, From Harvard University: The Civil Rights Project Web site: http://www.civilrightsproject.harvard.edu/research/articles/NCLB _ Survey _ Report .pdf.

Szentagotai, A., & Freeman, A. (2007, March). An analysis of the relationship between irrational beliefs and automatic thoughts in predicting distress. *Journal of Cognitive and Behavioral Psychotherapies, 7*(1), 1-9.

Taylor, B., Zimmer, C., & Womack, S. T. (2005). *Strategies to prevent teacher stress and burnout.* Retrieved December 13, 2006, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/1b/c3/2d.pdf.

Taylor, S. E., & Armor, D. A. (1996). Positive illusions and coping with adversity. *Journal of Personality, 64*(4), 873-898.

Taylor, S. E., Kemeny, M. E., Reed, G. M., Bower, J. E., & Gruenewald, T. L. (2000). Psychological resources, positive illusions, and health. *American Psychologist, 55*(1), 99-109.

Taylor, S. E., Lerner, J. S., Sherman, K. K., Sage, R. M., & McDowell, N. K. (2003). Are self-enhancing cognitions associated with healthy or unhealthy biological profiles? *Journal of Personality and Social Psychology, 85*(4), 605-615.

Treadwell, K. R. H., & Kendall, P. C. (1996). Self-talk in youth with anxiety disorders: States of mind, content specificity, and treatment outcomes. *Journal of Consulting and Clinical Psychology, 64*(5), 941-950.

Tschannen-Moran, M., & Barr, M. (2004). Fostering student learning: The relationship of collective teacher efficacy and student achievement. *Leadership and Policy in Schools, 3*(3), 189-209.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: Its meaning and measure. *Review of Educational Research, 68*(2), 202-248.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive construct. *Teaching and Teacher Education, 17,* 783-805.

Vancouver, J. B. (2005). The depth of history and explanation as benefit and bane for psychological control theories. *Journal of Applied Psychology, 90*(1), 38-52.

Vygotsky, L. S. (1962). *Thought and language.* (E. Hanfmann & G. Vakar, Eds. & Trans.). Cambridge, MA: MIT Press.

Vygotsky, L. S. (1978). *Mind in Society.* Cambridge, MA: Harvard University Press.

Wagner, C. R. (2006). The school leader's tool for assessing and improving school culture. *Principal Leadership: High School Edition,* 41-44.

Watson, C. B., Chemers, M. M., & Preiser, N. (2001). Collective efficacy: A multilevel analysis. *Personality and Social Psychology Bulletin, 27*(8), 1057-1068.

Watson, J. B. (1998). Psychology as the behaviorist views it. In J. F. Brennan (Ed.), *Readings in the History and Systems of Psychology* (2nd ed., pp. 204-217). Upper Saddle River, NJ: Prentice-Hall.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71*(1), 3-25.

Weiner, B. (1985). An attributional theory of achievement, motivation and emotion. *Psychological Review, 92,* 548-573.

Wheatley, K. F. (2005). The case for reconceptualizing teacher efficacy research. *Teaching and Teacher Education, 21,* 747-766.

White House. (n.d.). Transforming the role of education so that no child is left behind. Washington, DC: Retrieved September 23, 2006, from http://www.whitehouse.gov/news/reports/no-child-left-behind/html.

Wieclaw, J., Agerbo, E., Mortensen, P. B., & Bonde, J. P. (2006). Risk of affective and stress related disorders among employees in human service professions. *Occupational and Environmental Medicine, 63,* 314-319.

Wilhelm, K., Dewhurst-Savellis, J., & Parker, G. (2000). Teacher stress? An analysis of why teachers leave and why they stay. *Teachers and Teaching, 6,* 291-304.

Wills, F., & Sanders, D. (1997). *Cognitive therapy: Transforming the image.* London: Sage.

Wisniewski, L., & Gargiulo, R. M. (1997). Occupational stress and burnout among special educators: A review of the literature. *Journal of Special Education, 31*(3), 325-346.

Wood, R., & Bandura, A. (1989). Impact of conceptions of ability on self-regulatory mechanisms and complex decision-making. *Journal of Personality and Social Psychology, 56*(3), 407-415.

Woodward, W. R. (1982). The "discovery" of social behaviorism and social learning theory, 1870-1980. *American Psychologist, 37*(4), 396-410.

Woolfolk, A. E., & Hoy, W. K. (1990). Prospective teachers' sense of efficacy and beliefs about control. *Journal of Educational Psychology, 82,* 81-91.

Yoon, J. S. (2002). Teacher characteristics as predictors of teacher-student relationships: Stress, negative affect, and self-efficacy. *Social Behavior and Personality, 30*(5), 485-494.

APPENDICES

Appendix A

TEACHER CONCERNS INVENTORY

The following are a number teacher concerns. Please identify those factors which cause you stress in your present position. Read each statement carefully and decide if you ever feel this way about your job. Then, indicate how strong the feeling is when you experience it by circling the appropriate rating on the 5-point scale. If you have not experienced this feeling, or if the item is inappropriate for your position, circle number 1 (no strength; not noticeable). The rating scale is shown at the top of each page

Examples:

I feel insufficiently prepared for my job 1 2 3 4 5

If you feel very strongly that you are insufficiently prepared for your job, you would circle number 5.

I feel that if I step back in either effort or commitment,
I may be seen as less competent 1 2 3 4 5

If you never feel this way, and the feeling does not have noticeable strength, you would circle number 1.

	1	2	3	4	5
HOW STRONG ?	no strength not noticeable	mild strength barely noticeable	medium strength moderately noticeable	great strength very noticeable	major strength extremely noticeable

---

TIME MANAGEMENT

1. I easily over-commit myself	1	2	3	4	5
2. I become impatient if others do things to slowly	1	2	3	4	5
3. I have to try doing more than one thing at a time	1	2	3	4	5
4. I have little time to relax/enjoy the time of day	1	2	3	4	5
5. I think about unrelated matters during conversations	1	2	3	4	5
6. I feel uncomfortable wasting time	1	2	3	4	5
7. There isn't enough time to get things done	1	2	3	4	5
8. I rush in my speech	1	2	3	4	5

Add items 1 through 8; divide by 8; place your score here:

WORK-RELATED STRESSORS

9. There is little time to prepare for my lessons/responsibilities	1	2	3	4	5
10. There is too much work to do	1	2	3	4	5
11. The pace of the school day is too fast	1	2	3	4	5
12. My caseload/class is too big	1	2	3	4	5
13. Personal priorities are shortchanged due to time demands	1	2	3	4	5
14. There is too much administrative paperwork in my job	1	2	3	4	5

Add items 9 through 14; divide by 6; place your score here:

PROFESSIONAL DISTRESS

15. I lack promotion and/or advancement opportunities	1	2	3	4	5
16. I am not progressing in my job as rapidly as I would like	1	2	3	4	5
17. I need more status and respect on my job	1	2	3	4	5
18. I receive an inadequate salary for the work I do	1	2	3	4	5
19. I lack recognition for extra work and good teaching I do.	1	2	3	4	5

Add items 15 through 19; divide by 5; place your score here:

DISCIPLINE AND MOTIVATION

I feel frustrated...

20. ...because of discipline problems in my classroom	1	2	3	4	5
21. ...having to monitor pupil behavior	1	2	3	4	5
22. ...because some students would better if they tried	1	2	3	4	5
23. ...attempting to teach students who are poorly motivated	1	2	3	4	5
24. ...because of inadequate/poorly defined discipline problems	1	2	3	4	5
25. ...when my authority is rejected by pupils/administration	1	2	3	4	5

Add items 20 through 25; divide by 6; place your score here:

PROFESSIONAL INVESTMENT

26. My personal opinions are not sufficiently aired	1	2	3	4	5
27. I lack control over decisions made about school matters.	1	2	3	4	5
28. I am not emotionally/intellectually stimulated on the job.	1	2	3	4	5
29. I lack opportunities for professional improvement.	1	2	3	4	5

Add items 26 through 29; divide by 4; place your score here:

EMOTIONAL MANIFESTATIONS

I respond to stress...

30. ...by feeling insecure.	1	2	3	4	5
31. ...by feeling vulnerable	1	2	3	4	5
32. ...by feeling unable to cope.	1	2	3	4	5

33. ...by feeling depressed	1	2	3	4	5
34. ...by feeling anxious.	1	2	3	4	5

Add items 30 through 34; divide by 5; place your score here:

FATIGUE MANIFESTATIONS

I respond to stress...

35. ...by sleeping more than usual.	1	2	3	4	5
36. ...by procrastinating.	1	2	3	4	5
37. ...by becoming fatigued in a very short time	1	2	3	4	5
38. ...with physical exhaustion	1	2	3	4	5
39. ...with physical weakness	1	2	3	4	5

Add items 35 through 39; divide by 5; place your score here:

CARDIOVASCULAR MANIFESTATIONS

I respond to stress...

40. ...with feelings of increased blood pressure.	1	2	3	4	5
41. ...with feeling of heart pounding or racing	1	2	3	4	5
42. ...with rapid and/or shallow breath.	1	2	3	4	5

Add items 40 through 42; divide by 3; place your score here:

GASTRONOMICAL MANIFESTATIONS

I respond to stress...

43. ...with stomach pain of extended duration.	1	2	3	4	5
44. ...with stomach cramps.	1	2	3	4	5
45. ...with stomach acid	1	2	3	4	5

Add items 43 through 45; divide by 3; place your score here:

BEHAVIORAL MANIFESTATIONS

I respond to stress...

46. ...by using over-the-counter drugs.	1	2	3	4	5
47. ...by using prescription drugs.	1	2	3	4	5
48. ...by using alcohol.	1	2	3	4	5
49. ...by calling in sick	1	2	3	4	5

Add items 46 through 49; divide by 4; place your score here:

TOTAL SCORE

Add all calculated scores; enter the value here _____.
Then, divide by 10; enter the Total Score here _____.

Appendix B

Teacher Beliefs

This questionnaire is designed to help us gain a better understanding of the kinds of things that create challenges for teachers. Your answers are confidential.

Directions: Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum.

Please respond to each of the questions by considering the combination of your *current* ability, resources, and opportunity to do each of the following in your present position.

	None at all		Very Little		Some Degree		Quite A Bit		A Great Deal
1. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. To what extent can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How well can you implement alternative teaching strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

13. What is your gender?
- O Male
- O Female

14. What is your racial identity?
- O African American
- O White, Non-Hispanic
- O Other

15. What subject matter do you teach? (as many as apply)
- O All (Elementary/ Self-contained)
- O Math
- O Science
- O Language Arts
- O Social Studies

16. What level do you teach?
- O Elementary
- O Middle
- O High

17. What is the context of your school?
- O Urban
- O Suburban
- O Rural

18. What is the approximate proportion of students who receive free and reduced lunches at your school?
- O 0-20%
- O 21-40%
- O 41-60%
- O 61-80%
- O 81-100%

19. What grade level(s) do you teach? (K) (1) (2) (3) (4) (5) (6) (7) (8) (9)

20. How many years have you taught? (0) (1) (2) (3) (4) (5) (6) (7) (8) (9)

For office use only.

(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)
(0) (1) (2) (3) (4) (5) (6) (7) (8) (9)

Appendix C

Collective Teacher Beliefs

Directions: Please indicate your opinion about each of the questions below by marking any one of the nine responses in the columns on the right side, ranging from (1) "None at all" to (9) "A Great Deal" as each represents a degree on the continuum.

Please respond to each of the questions by considering the current ability, resources, and opportunity of the teaching staff in your school to do each of the following.

This questionnaire is designed to help us gain a better understanding of the kinds of things that create challenges for teachers. Your answers are confidential.

	None at all		Very Little		Some Degree		Quite A Bit		A Great Deal
1. How much can teachers in your school do to produce meaningful student learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can your school do to get students to believe they can do well in schoolwork?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. To what extent can teachers in your school make expectations clear about appropriate student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. To what extent can school personnel in your school establish rules and procedures that facilitate learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. How much can teachers in your school do to help students master complex content?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can teachers in your school do to promote deep understanding of academic concepts?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can teachers in your school respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How much can school personnel in your school do to control disruptive behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can teachers in your school do to help students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How well can adults in your school get students to follow school rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. How much can your school do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can your school do to help students feel safe while they are at school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

For office use only.

(1) (2) (3) (4) (5) (6) (7) (8) (9)
(1) (2) (3) (4) (5) (6) (7) (8) (9)
(1) (2) (3) (4) (5) (6) (7) (8) (9)

Appendix D

Automatic Thoughts Questionnaire – Revised

Listed below are a variety of thoughts that pop into people's heads. Please read each thought and indicate how frequently, if at all, the thought occurred to you over the last week. Please read each item carefully and circle the appropriate answers on the answer sheet in the following fashion (1="not at all," 2 = "sometimes," 3 = "moderately often," 4 = "often," and 5 = "all the time").

Response	Thoughts
1 2 3 4 5	1. I feel like I'm up against the world.
1 2 3 4 5	2. I'm no good.
1 2 3 4 5	3. I'm proud of myself.
1 2 3 4 5	4. Why can't I ever succeed?
1 2 3 4 5	5. No one ever understands me.
1 2 3 4 5	6. I've let people down.
1 2 3 4 5	7. I feel fine.
1 2 3 4 5	8. I don't think I can go on.
1 2 3 4 5	9. I wish I were a better person.
1 2 3 4 5	10. No matter what happens, I know I'll make it.
1 2 3 4 5	11. I'm so weak.
1 2 3 4 5	12. My life's not going the way I want it to.
1 2 3 4 5	13. I can accomplish anything.
1 2 3 4 5	14. I'm so disappointed in myself.
1 2 3 4 5	15. Nothing feels good anymore.
1 2 3 4 5	16. I feel good.
1 2 3 4 5	17. I can't stand this anymore.
1 2 3 4 5	18. I can't get started.
1 2 3 4 5	19. What's wrong with me?
1 2 3 4 5	20. I'm warm and comfortable.
1 2 3 4 5	21. I wish I were somewhere else.
1 2 3 4 5	22. I can't get things together.
1 2 3 4 5	23. I hate myself.
1 2 3 4 5	24. I feel confident I can do anything I set my mind to.
1 2 3 4 5	25. I'm worthless.
1 2 3 4 5	26. Wish I could just disappear.
1 2 3 4 5	27. What's the matter with me?
1 2 3 4 5	28. I feel very happy.
1 2 3 4 5	29. I'm a loser.
1 2 3 4 5	30. My life is a mess.
1 2 3 4 5	31. I'm a failure.
1 2 3 4 5	32. This is super!
1 2 3 4 5	33. I'll never make it.
1 2 3 4 5	34. I feel so helpless.
1 2 3 4 5	35. Something has to change.
1 2 3 4 5	36. There must be something wrong with me.
1 2 3 4 5	37. I'm luckier than most people.
1 2 3 4 5	38. My future is bleak.
1 2 3 4 5	39. It's just not worth it.
1 2 3 4 5	40. I can't finish anything.

Appendix E
Superintendent's Invitation to Participate

February 12, 2008

Dear Superintendent,

My name is Robert Shambaugh, a doctoral student at Philadelphia College of Osteopathic Medicine and former L.I.U. # 12 Pennsylvania certified school psychologist who worked at William Penn High School. I am seeking permission to conduct research for my dissertation under the supervision of Dr. Stuart B. Badner, in your school district.

We are currently conducting a study on the relationship between Regular Education elementary school teachers' self-beliefs and self-statements, and their ability to affect their perception of occupational stress. We are investigating what teachers believe they can accomplish, what they believe their colleagues can accomplish, how they think, and how much stress they experience teaching.

Regular Education teachers in grades 1 thru 5 and not an arts, music, physical education, or substitute teacher, may take part in this study. If they agree to participate in this study, they will be asked to complete four questionnaires that will take approximately 15 to 20 minutes for them to complete *on their own time.* The teachers' responses and identity will be anonymous. Participation in the study is voluntary and teachers may decide not to participate at any point in time with no consequences.

I am requesting to distribute the questionnaires at faculty meetings. The collected and analyzed results will be made available to you and your school district upon completion of the study.

Thank you for considering this proposal and offering your teachers to participate in the advancement of professional development. Please give me your response by emailing me at robsham@comcast.net or you may call me at (717)-808-0486. Thank you.

Sincerely,

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Appendix F

Letter to the Participants

Dear Participant:

We are currently conducting a study on the relationship between elementary teachers' self-beliefs, self-statements, and their perception of occupational stress. We are investigating what elementary school teachers believe they can accomplish, what they believe their colleagues can accomplish, whether their thoughts are positive or negative, and how much stress they perceive they have in their job.

If you are a Regular Education teacher in grades 1 thru 5 and not an arts, music, physical education, or substitute teacher, you may take part in this study. If you agree to participate in this study, you will be asked to complete four questionnaires.

These questionnaires will take approximately 15 to 20 minutes to complete. Your participation in the study is voluntary. You may decide not to participate or to stop your participation at any point in time with no consequences to you. The items in the enclosed questionnaires ask about personal, educational and professional information. In addition, you will be asked about feelings, thoughts, beliefs and behaviors. Some of you may experience this as upsetting or uncomfortable. In addition, you may find that you are reminded of something, which could be experienced as upsetting or uncomfortable. In the unlikely event that either of these instances occurs, please contact the researchers for a list of referrals in your area. If you do not wish to contact the researchers directly, you may refer to the attached list of mental health resources. In the event of a mental health emergency, please proceed to your local hospital emergency room. A mental health emergency includes experiencing thoughts or feelings of either harming yourself or another individual.

Your responses to the enclosed questionnaires are completely anonymous. This means that no one, including the investigators will be able to identify you. You will not be asked to put your name on any of the enclosed materials. As a participant, you will not receive information about the questionnaires that you complete. However, if you are interested in the result of our study, you may contact the investigators for a copy of the results for the group as a whole. Thank you for considering participation.

Feel free to contact the researcher if you have any questions or problems or if you need a referral at 215-871-6457.

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Appendix G

Instructions to the Participants

Participants

Instructions for Participant_____

Enclosed you will find:

- Teacher Beliefs Scale (includes Teacher Survey)
- Collective Teacher Beliefs
- Automatic Thoughts Questionnaire-Revised
- Teacher Concerns Inventory

Please follow the directions at the top of each page. Answer all the items and choose one answer per item. Remember your responses are anonymous. To protect your confidentiality, do not write any identifying information on any of the materials. Identifying information includes items such as your name, address, social security number, etc. Place your completed questionnaires into the envelope provided, seal and return the envelope to the box, which will be placed in the administration office.